# Defense Total Asset Visibility Implementation Plan

November 1995

# FOREWORD

For the purpose of developing a comprehensive, coherent, and joint approach to supporting our national military strategy and controlling our resources through Total Asset Visibility, I have directed the Joint Defense Total Asset Visibility Office (DTAV) to develop the DTAV Implementation Plan.

Recent deployments of U.S. forces underscore the importance of gaining control of the logistics and personnel pipeline. To achieve optimum performance with fewer assets, and to target the appropriate assets to the point of need, theater Commanders-in-Chief, DoD managers, and the customers must have timely and reliable information regarding the location, quantity, and status of units, personnel, equipment, and supplies. We cannot begin to support our national military strategy and have control of our resources without DTAV.

This plan is an exciting and ambitious blueprint that spells out concepts, requirements and milestones which will allow us to field this essential capability. I greatly appreciate the many months of hard work and coordination required to develop this plan, but I now charge you to intensify your efforts to fully execute the tasks identified in line with the milestones incorporated. I urge all Components to include the goals, objectives and strategies of this plan into your management, programming, and budget priorities. I ask you to work with me -- become agents of change, owners, and builders. The time to act is now.

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# Executive Summary

Total asset visibility (TAV) is the capability to provide timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, and supplies. It also includes the capability to act upon that information to improve the overall performance of the Department of Defense's (DoD's) logistics practices. For the purpose of this plan, TAV includes the ability to provide timely and accurate status on requisitions. The Department's need for TAV, which has long been recognized, is based on two key factors: military readiness and the cost of providing logistics support to operating forces.

Without TAV, DoD's ability to maximize military readiness is reduced. For instance, during Operation Desert Shield/Storm, the responsiveness of the logistics system was degraded by thousands of duplicate orders placed because operational units had inadequate visibility over the status of their requisitions, particularly for critical items. Moreover, an enormous amount of materiel was shipped to the theater, but it was not readily available to our forces because of poor control and visibility of assets in-theater. Such problems reduce the readiness of combat forces. Fortunately, we had the luxury of delaying combat operations until the units' materiel requirements were satisfied. This luxury may not exist in future contingencies.

As DoD continues to downsize, the need to bring greater efficiency to its logistics operations increases. TAV has the potential to contribute substantially to achieving those improvements in efficiency. It will allow integrated materiel managers to offset wholesale procurements with excess retail assets. It will increase user confidence in logistics systems, thereby reducing the incidence of duplicate requisitions. It will expose bottlenecks in the supply and transportation systems, which will ultimately reduce logistics response time. These benefits will accrue in both peacetime and wartime.

Achieving TAV is an enormous undertaking, one that involves all logistics disciplines and DoD Components. This plan documents the requirements of both logistics and operational managers for asset visibility. It also proposes an operating concept to achieve TAV that reflects a "divide and conquer" approach to solving this tremendous challenge. The concept addresses TAV requirements in four areas: requisition tracking, visibility of assets in-storage or in-process, visibility of assets in-transit, and logistics management within a theater of operations. Many of those requirements evolved from the visibility problems

encountered during Operation Desert Shield/Storm. This approach recognizes both ongoing initiatives in the development of logistics automated information systems (AISs) and distinct requirements of different functional areas. In each case, a specified "data repository" will serve as a central hub for asset visibility.

## Requisition Tracking

The Logistics Information Processing System (LIPS), which the Defense Automatic Addressing System Center (DAASC) has developed, will provide visibility over the status of requisitions. The key to LIPS fulfilling this aspect of TAV is its ability to ensure that *all* requisitions and requisition-related data (including retrograde documents associated with the turn-in of unserviceable items and the requisitioning of replacements) are included in, or quickly available to, the LIPS data base. In most cases, this requirement will be satisfied by routing all requisitions, requisition modifiers, returns, and status reports through the Defense Automatic Addressing System (DAAS), from which DAASC will automatically update LIPS. In those cases where DAAS is not the primary communication channel, an image of the transaction will be sent to DAASC to update LIPS. LIPS will also provide status information to the Global Transportation Network (GTN) to enable it to provide accurate status information when a requisition is in-transit.

## Assets In-Storage or In-Process

The AIS of each inventory control point (ICP) will provide visibility of assets that are in-storage or in-process, with the latter defined as assets being procured or repaired. Those AISs have always reflected wholesale assets and requirements, but under the TAV concept they will also maintain current data on retail assets and requirements. This visibility will include those inventories down to the following levels, as described in DoD Regulation 4140.1-R, *DoD Materiel Management Regulation*, January 1993:

- Army — direct support authorized stockage lists,
- Navy — shipboard and major shore stations,
- Air Force — base supply, and
- Marine Corps — installation supply and Marine Expeditionary Force support activities.

Moreover, the ICP AIS (a generic term for all ICP AISs) will have visibility of assets in depot- and intermediate-level repair facilities, assets in production at both organic and commercial facilities, and assets held by the Defense Reutilization and Marketing Service (DRMS). Retail supply activities, depot-level repair

facilities, wholesale distribution depots, and DRMS will transmit data to the ICP AIS to ensure it contains current asset and requirements data.

In addition to ICP visibility of assets, retail AISs will provide full visibility of in-storage and in-process at the ICP level. Retail managers need that information to make good requisitioning and referral decisions.

## Assets In-Transit

GTN will be the central repository for visibility of assets in-transit from origin to destination, including all military-, government-, and vendor-documented shipments. GTN will have a broader scope than either LIPS or ICP AIS. Its data base will contain shipment status information, booking information, passenger reservation information, aircraft and ship manifests, personal property data, medical patients information, and vessel and aircraft scheduling data.

GTN will receive current in-transit data from numerous transportation AISs, including the

- Transportation Coordinator's Automated Information for Movement System II,
- Worldwide Port System,
- Consolidated Aerial Port System II,
- CONUS Freight Management System,
- Defense Transportation Tracking System,
- Passenger Reservation and Manifesting System, and
- Carrier's Automated Shipment and Tracing System.

## In-Theater Asset Visibility

A joint task force logistics management AIS, or JTAV, will provide theater Commanders-in-Chief, joint task force commanders, and deploying forces with materiel and personnel asset visibility. JTAV will interface with Military Service logistics data bases to capture visibility of assets held by theater forces and with the theater transportation information system to provide visibility of shipments within a theater. JTAV will use DAAS to exchange information with LIPS and

ICP AIS on assets in-bound to the theater and available in CONUS. It will also obtain in-transit data directly from GTN. In addition to providing asset visibility, JTAV will provide essential logistics planning and analysis capabilities, to include

- supporting deliberate and crisis action planning;
- allocating critical assets;
- identifying and resolving in-theater logistics bottlenecks;
- monitoring the status and capability of strategic mobility assets;
- determining requirements for additional asset and lift capability; and
- supporting theater doctrine, budget, and procurements decisions.

TAV requires efficient means to capture source data on asset identity and movement. Automatic identification technology, or AIT, is a suite of tools for facilitating data capture and transfer. AIT includes a variety of devices, such as bar codes, magnetic stripes, optical memory cards, and radio frequency tags for marking or "tagging" individual items, multipacks, equipment, air pallets, or containers, along with the hardware and software required to create the devices, read the information on them, and integrate that information with other logistics information. AIT, when integrated with logistics information systems, is key to DoD's TAV efforts. To fully exploit its potential, AIT must be consistently applied to all materiel assets and shipment containers. Moreover, storage sites, maintenance facilities, shipping and receiving activities, and ports must be capable of reading, processing, and communicating AIT data.

DoD currently has several prototype or demonstration projects planned to solve specific TAV problems and gain experience with the automated tools that are key to capturing and exchanging TAV information. Several of those projects are summarized below:

- *Lateral Redistribution Project.* In this project, retail assets are being made available for redistribution among the Military Services. Component ICPs, which have access to Military Service asset visibility systems, are able to use redistributable retail assets to fill customer backorders, offset procurement and maintenance actions, and reimburse redistributors for the cost of materiel plus their packaging, crating, handling, and transportation costs. The current phase of the Lateral Distribution Project involves the Defense Logistics Agency (DLA) querying Navy's Virtual Master Stock Item Record (VMSIR), the Air Force Standard Base Supply System (SBSS), and Army TAV systems for asset visibility of DLA-managed items held at Military Service retail sites to fulfill backorders and offset procurements.
- *Warner Robins Automated Systems Demonstration.* In this demonstration, communications links to wholesale item managers at the Warner Robins Air

Logistics Center will be expanded to provide greater visibility of assets in-storage, in-process, and held for disposal.

- *Rapid Prototyping of JTAV.* In this prototype, Military Service application data bases, GTN, and LIPS will be interfaced to a central repository to provide in-theater asset visibility and a real-time decision support capability.

- *Joint Warrior Interoperability Demonstration.* In this demonstration, the JTAV prototype will be used during a Joint exercise that focuses on command, control, communications, and intelligence applications.

- *Joint Personnel Asset Visibility System.* This application will provide a link to repositories of personnel information (e.g., Defense Manpower Data Center, Military Service Personnel Systems, and GTN) to provide information on personnel entering, present in, or departing an area of operations.

- *Ammunition Tracking.* In this effort, the scope of the Defense Transportation Tracking System will be expanded to provide in-transit visibility of arms and ammunition moving by all modes of transportation, both in CONUS and overseas.

Overall responsibility for achieving TAV rests with the Deputy Under Secretary of Defense (Logistics), DUSD(L). The Defense TAV (DTAV) Council will assist in this effort by providing a senior forum to resolve major issues affecting DoD logistics. The DUSD(L) will chair the DTAV Council, which will consist of the Deputy Chiefs of Staff (Logistics) or equivalent of the Military Services; Director, DLA; Director for Manpower and Personnel and Director for Logistics, Joint Staff; and Deputy Commander-in-Chief, United States Transportation Command.

A Joint DTAV Office will be established to provide daily management and coordinate all TAV initiatives. The Joint DTAV Office will include representatives from all organizations comprising the DTAV Council, as well as a representative from the Defense Information Systems Agency. The responsibilities of the Joint DTAV Office are to

- refine and clarify user requirements and the TAV operating concept;

- coordinate the TAV initiative with DoD's Corporate Information Management program;

- perform an economic analysis of the projected costs and benefits of TAV;

- coordinate TAV initiatives and funding requirements with all supporting Components and Corporate Information Management offices;

- propose consolidation of ongoing TAV initiatives to avoid investments in redundant capabilities;

- identify DoD TAV priorities and provide major schedules for TAV development;
- oversee the development, implementation, and integration of TAV capabilities;
- ensure the development of standard formats and protocols for asset queries and reports; and
- monitor execution of this plan and advise the DTAV Council on the status of its implementation.

# Contents


Chapter 1. Introduction ..... 1-1

Background ..... 1-1
Scope ..... 1-2
Purpose ..... 1-2
Methodology ..... 1-3
Benefits of TAV ..... 1-4
Requisition Tracking ..... 1-4
Supply Support ..... 1-4
Inventory Levels and Costs ..... 1-5
Operations ..... 1-5
Materiel Identification ..... 1-6
Operational Planning and Assessment ..... 1-6
Relationship to CIM Initiatives ..... 1-7
Organization of Report ..... 1-7

Chapter 2. TAV Concept Overview ..... 2-1

Introduction ..... 2-1
Concept ..... 2-1
Logistics Information Processing System ..... 2-1
Inventory Control Point Automated Information System ..... 2-3
Global Transportation Network ..... 2-3
Joint Theater Logistics Automated Information System ..... 2-4
System Integration ..... 2-5
Principles Underlying Future TAV Development ..... 2-5
TAV Features ..... 2-6
Data Bases ..... 2-6
Accessing and Updating TAV Information ..... 2-6
Acting on TAV Information ..... 2-7
Summary ..... 2-7

# Contents (Continued)


Chapter 3. Tracking Requisitions ..... 3-1

Background ..... 3-1
Requirements ..... 3-3
Current Capabilities and Ongoing Initiatives ..... 3-3
Operating Concept ..... 3-4
Principles ..... 3-4
Operating Characteristics ..... 3-4
Functional Roles ..... 3-6
Issues and Actions ..... 3-6

Chapter 4. Materiel Business Area ..... 4-1

Introduction ..... 4-1
In-Storage ..... 4-1
Requirements ..... 4-1
Current Capabilities and Ongoing Initiatives ..... 4-3
Operating Concept ..... 4-5
Issues and Actions ..... 4-10
In-Process ..... 4-11
Maintenance ..... 4-11
Procurement ..... 4-17
Summary of Materiel Issues and Actions ..... 4-21

Chapter 5. Transportation Business Area ..... 5-1

Background ..... 5-1
Unit Movements ..... 5-2
Introduction ..... 5-2
Cargo ..... 5-2
Personnel ..... 5-5
Non-Unit Movements ..... 5-7
Introduction ..... 5-7
Cargo ..... 5-7

# Contents (Continued)


Personnel ..... 5-9
Patients ..... 5-11
Personal Property ..... 5-12
Summary ..... 5-13

Chapter 6. Joint Theater Logistics ..... 6-1

Introduction ..... 6-1
Requirements ..... 6-2
Ongoing Initiatives ..... 6-3
Logistics Anchor Desk ..... 6-3
Battlefield Distribution ..... 6-3
Theater Transportation System ..... 6-3
Operating Concept ..... 6-4
Principles ..... 6-4
Concept of Operations ..... 6-4
Architecture ..... 6-7
Issues and Actions ..... 6-9

Chapter 7. Automatic Identification Technology ..... 7-1

Introduction ..... 7-1
Requirements ..... 7-3
Ongoing Initiatives ..... 7-5
Operating Concept ..... 7-6
Overview ..... 7-6
Family of AIT Devices ..... 7-8
Illustrating the Concept ..... 7-10
Issues and Actions ..... 7-11
Summary ..... 7-13

Chapter 8. Rapid Prototyping and Demonstrations ..... 8-1

Overview ..... 8-1
Rapid Prototype of JTAV ..... 8-1

# Contents (Continued)


Joint Personnel Asset Visibility System ..... 8-2
Warner Robins Automated Systems Demonstration ..... 8-2
Joint Warrior Interoperability Demonstration ..... 8-3
Ammunition Tracking Demonstration ..... 8-4
Lateral Redistribution and Procurement Offset Project ..... 8-5
Issues and Actions ..... 8-5

Chapter 9. Execution Strategies ..... 9-1

Overview ..... 9-1
Priorities ..... 9-1
Critical Factors to Success ..... 9-1
Organizational Responsibilities ..... 9-2
Funding Strategy ..... 9-5
Resource Requirements ..... 9-6
General Cost Categories ..... 9-6
Cost Elements for TAV Development ..... 9-7

Appendix A. Glossary of Terms

Appendix B. Acronyms

Appendix C. Current Capabilities and Ongoing Initiatives

Appendix D. Milestones

# Illustrations


2-1. TAV Operating Concept ..... 2-2

3-1. Processing Orders for Materiel ..... 3-1

3-2. Requisition Tracking — TAV Operating Concept ..... 3-5

4-1. In-Storage and in-Process— DoD TAV Operating Concept ..... 4-5

5-1. Unit Cargo — ITV Operating Concept ..... 5-3

5-2. Redeployment and Retrograde Cargo — ITV Operating Concept ..... 5-5

5-3. Unit Personnel — ITV Operating Concept ..... 5-6

5-4 Non-Unit Cargo — ITV Operating Concept ..... 5-9

5-5. Non-Unit Personnel — ITV Operating Concept ..... 5-10

5-6. Medical Patients — ITV Operating Concept ..... 5-12

6-1. JTAV Operating Concept ..... 6-5

6-2. JTAV Configuration ..... 6-8

7-1. AIT Operating Concept ..... 7-7

9-1. Joint DTAV Organization ..... 9-4

# Tables


7-1. Selected AITs ..... 7-2

7-2. Strengths and Weaknesses of Selected AITs ..... 7-2

D-1. Program Management Milestones ..... D-1

D-2. Milestones to Achieve Requisition Tracking Capability ..... D-2

D-3. Milestones to Achieve Visibility of Assets In-Storage or In-Process .... D-3

D-4. Milestones to Achieve Visibility of Assets In-Transit ..... D-5

D-5. Milestones to Create a JTF Logistics Management AIS ..... D-7

D-6. Milestones to Implement Automated Identification Technology ..... D-8

D-7. Milestones Required for TAV Prototypes and Demonstrations ..... D-9

D-8. Milestones Critical to Multiple Functional Areas ..... D-10

CHAPTER 1

# Introduction

## BACKGROUND

The recent downsizing of the force structure, emphasis on major regional contingencies, and changes in the worldwide political environment are placing new and challenging demands upon the Department of Defense's (DoD's) logistics system. In recognition of those demands, the 1994 edition of the *DoD Logistics Strategic Plan* called out two desired outcomes for a restructured logistics system.[1] Those outcomes are

- better, faster, and more precise and mobile support; and
- a leaner structure that makes more effective use of both public and private logistics capabilities.

One of the keys to DoD achieving those outcomes is total asset visibility (TAV).

> ***Definition.*** TAV is the capability to provide users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, and supplies. It also includes the capability to act upon that information to improve overall performance of DoD's logistics practices.

This definition of TAV builds on the definition provided in DoD Regulation 4140.1-R, *DoD Materiel Management Regulation*, January 1993. It expounds on the need for timely and accurate information on the status and location of all assets, and it expands the range of assets from secondary items to all classes of supply (including ammunitions and principal end items) as well as units, personnel, and medical patients.

In response to the growing importance of TAV to a restructured Defense logistics system, the Deputy Under Secretary of Defense (Logistics), DUSD(L), established the TAV Joint Task Force (JTF) to develop a clear, comprehensive plan for implementing an integrated TAV capability throughout DoD. This implementation plan satisfies the TAV requirements of numerous customers, both operational and logistics managers. The operational managers include Commanders-in-Chief (CINCs), JTF commanders, lift and port operators, and requisitioning units; while the logistics managers include Military Service and Defense Logistics Agency (DLA) headquarters; United States Transportation

[1] Office of the Deputy Under Secretary of Defense, *Department of Defense Logistics Strategic Plan*, 1994 Edition.

Command (USTRANSCOM); integrated materiel managers (IMMs); maintenance facilities; retail supply and distribution activities; and installation transportation offices. This document presents that implementation plan. It refines the earlier TAV planning efforts represented by the *DoD Total Asset Visibility Plan* that was published in 1992.[2]

## SCOPE

The *Defense Total Asset Visibility Implementation Plan* addresses the following assets:

- *In-storage* — assets that are being stored at retail and wholesale inventory organic or commercial sites, and at disposal activities.
- *In-process* — assets on order from DoD vendors, but not yet shipped, or in repair at intermediate- and depot-level organic or commercial maintenance facilities.
- *In-transit* — assets that are being shipped from origin (i.e., vendors, storage activities, or maintenance facilities) to destination (i.e., using units, storage activities, or maintenance facilities).[3]

Because a requisition is the initial step in obtaining any asset from supply activities, the plan also addresses tracking the status of requisitions placed on organic or commercial sources of supply. While TAV offers numerous benefits during peacetime, its primary value is during wartime. Consequently, the plan specifically addresses the TAV needs of warfighting CINCs.

TAV is not a separate automated information system (AIS). Rather, it is a capability that a family of logistics systems can provide. Those systems, however, need to be integrated across DoD Components, processes, functional areas, business areas, management levels, and echelons of command. Such an integration raises a number of unprecedented technical, administrative, and organizational challenges, some of which are addressed in this plan.

## PURPOSE

The purpose of this plan is to

- define TAV requirements and present an architecture for satisfying those requirements,
- propose an operating concept for each segment of TAV,

[2] Department of Defense, *DoD Total Asset Visibility Plan*, April 1992.

[3] In-transit assets include personnel and medical patients, in addition to unit equipment, end items, and supplies.

- provide for the continuing development and implementation of automatic identification technologies (AITs) and advanced technical concepts that are key to an effective TAV capability,
- integrate and enhance existing TAV initiatives to expand their application, and
- establish milestones for the development of a comprehensive TAV capability.

# METHODOLOGY

The TAV JTF surveyed numerous current and planned TAV-related systems, data bases, information flows, and communications capabilities. Based on the results of those surveys, it formulated a concept of operations on how DoD could achieve TAV. In formulating that concept of operations, the TAV JTF was guided by the following objectives:

- Enhance system responsiveness
- Satisfy customer requirements
- Make TAV information accessible through a single entry point
- Use one-time data entry to identify and track assets
- Build on existing capabilities
- Maximize the use of commercial TAV practices, capabilities, and technologies
- Focus on implementing a near-term TAV capability
- Integrate the plan with DoD's Corporate Information Management (CIM) efforts.

The TAV JTF consisted of three teams — project management, requirements definition, and systems and technology. The leader of each team reported to the Principal Assistant Deputy Under Secretary of Defense (Logistics), the TAV JTF Director. The project management team prepared this implementation plan; the requirements definition team defined the functional requirements from a user or customer perspective and identified the policy and business practice changes necessary to implement TAV; and the systems and technology team mapped the current and planned capabilities to the concept of operations and constructed an architecture capable of satisfying the concept of operations.

# BENEFITS OF TAV

This section describes some of the benefits that DoD should reap from implementing an effective TAV capability. In each case, it addresses how TAV would help to resolve a long-standing deficiency in DoD's logistics practices. Although Operations Desert Shield/Storm were outstanding military successes, they also surfaced most of these deficiencies. Unfortunately, the logistics experience of Desert Storm/Shield closely mirrors the results of practically every major deployment this century.

## Requisition Tracking

During Desert Shield/Storm, operating units frequently did not have visibility over the status of requisitioned materiel. As a result, units were not sure if the supply system had received their requisitions and was acting on them. That lack of confidence in the system resulted in units reordering the same materiel, which compounded congestion at shipping and receiving facilities, increased DoD's demand on commercial and DoD lift resources, and placed unneeded materiel in the operating theater.

A real-time capability to track orders (both the requisitions and associated materiel) from using units to IMMs, vendors, shipping activities, and port operators, for example, would instill user confidence in the supply system and eliminate a major cause of redundant orders.

## Supply Support

At the start of Desert Shield/Storm, the primary sources of materiel for operating units were retail assets owned by accompanying support activities. Because headquarters and operational commanders lacked visibility over many of those in-storage assets, they expended valuable resources to fill initial unit shortages. As operating units deployed and consumed their retail assets during training and later combat operations, they requisitioned replacement assets from the wholesale system. At that point, information concerning wholesale in-storage, in-process, and in-transit assets became critical to sustaining the high operating tempos of the combat plan.

When fully operational, TAV would ensure that all available assets are considered when filling customer requests for materiel and when procuring or repairing materiel assets. During Desert Shield/Storm, DLA demonstrated one of the principle benefits of full asset visibility. Under normal conditions, DLA has visibility only over its wholesale assets. However, during the Persian Gulf crisis, the Military Services allowed DLA, on an exception basis, to use their systems to gain visibility over some DLA-managed assets at retail levels. The process enabled DLA to use Military Service-owned retail assets to fill thousands of

high-priority, backordered requisitions from deployed combat units. Those retail assets are not normally visible to DLA inventory control points (ICPs).

This benefit, however, does not just apply during wartime. During peacetime, numerous demands from retail customers are passed to the wholesale system even though nearby retail activities of other Military Services may have redistributable stocks for those same items. Weapon system readiness routinely suffers because demands for critical replacement parts are backlogged pending receipt from procurement, while assets are readily available at nearby retail sites of another Military Service (or in some cases, the same Military Service).

## Inventory Levels and Costs

DoD's supply system consists of a series of inventory echelons that exist to fill customer demands. Each echelon generally makes order and repair decisions based on the status of its assets, with little consideration for the availability of assets in other Military Services. This practice frequently results in excess inventory levels because IMMs may direct the procurement of new assets, when a large quantity of unreported retail excess assets exist somewhere in the system. This practice also results in unneeded maintenance actions when IMMs direct the repair of unserviceable assets, while unreported retail serviceable excesses are available elsewhere.

TAV would enable IMMs to offset buy quantities with retail excess assets and, depending on the extent of those assets, delay buys. It would also enable IMMs to reduce their repair orders.

## Operations

In every major deployment during the 20th century, DoD has been plagued by a lack of visibility over cargo and personnel moving to and from the theater of operations. During Desert Shield/Storm, the movement of forces was hampered by the lack of visibility over personnel moving into, within, and out of the area of operations. Visibility over the movement and care of patients being evacuated from theater was also insufficient — 60 percent ended up at wrong destinations. DoD also lacked timely movement status information needed on deploying unit and non-unit cargo and personnel. Fortunately, it had time to ensure that all deployed units received their combat materiel before fighting began, a luxury that may not exist in future deployments.

As a result of that lack of visibility, DoD had difficulty identifying and setting priorities, and moving materiel from ports of debarkation (PODs). The amount of inbound materiel and the absence of information severely taxed facilities, personnel, and lift capability, and resulted in extensive manual operations to identify and transship critical materiel, which delayed combat readiness.

These shortcomings in logistics operations will continue until DoD implements a comprehensive in-transit visibility (ITV) capability. Once implemented, ITV would eliminate these shortcomings during both wartime and peacetime, and, in the process, improve the productivity of transportation resources.

## Materiel Identification

During Desert Shield/Storm, more than 20,000 containers of military materiel (out of a total of 40,000) arrived in Saudi Arabia with little or no documentation. They had to be opened, inventoried, resealed, and then reinserted into the transportation system because military personnel in the theater did not know their contents and the ultimate consignees. As a result, receipt processing times increased significantly. These delays in receiving, moving, and controlling resupply materiel contributed to critical shortages.

In addition, cargo receiving and processing facilities in the theater were overwhelmed with incoming materiel. The absence of consistent visibility of line-item materiel in shipment containers contributed to backlogs at aerial and water ports, difficulties in prioritizing the backlogs, and inefficiencies in intra-theater movements.

A TAV capability that includes AIT would greatly improve DoD's ability to rapidly and accurately identify assets that are in-transit or in-storage.

## Operational Planning and Assessment

Limited visibility of assets between and across echelons of supply makes it very difficult for theater commanders to know if they have the assets to carry out planned operations. It also inhibits military planners in assessing the ability of forces to conduct operations as part of a major regional contingency or relief effort. During Desert Shield/Storm, for example, a lack of visibility of assets enroute to repair, in repair, being returned from repair, and in production frustrated DoD's efforts to expedite those assets for use by support and combat forces. To compensate for this shortcoming, numerous off-line, manpower-intensive actions were required to provide the needed visibility.

TAV would provide military planners with the information that they need to identify critical shortages and expedite repair and production efforts.

## Relationship to CIM Initiatives

DoD established the CIM program to improve, standardize, and integrate its business functions across Military Service and Defense agency lines. The goals of that program are to

- eliminate unnecessary functional processes;
- evaluate and improve necessary functional processes;
- reduce redundant and unique AISs and applications, and standardize and modernize those systems;
- use standard data elements and definitions; and
- reduce operating and overhead costs.

As an automated capability supporting functional processes, TAV is under the purview of the CIM program. The TAV program initiatives will need to be interfaced with long-term CIM efforts to develop and implement standard logistics, transportation, distribution, and procurement systems. CIM centers will also be involved in all technical issues associated with those initiatives. In the near term, however, all TAV initiatives will be accomplished using migratory systems, to the extent practical.

## Organization of Report

Chapter 2 provides an overview of the proposed TAV concept of operations, while Chapter 3 presents DoD's requirements for tracking requisitions, describes related initiatives, and discusses several actions that DoD needs to take to improve its ability to track requisitions. Chapter 4 examines DoD's TAV requirements for the in-storage and in-process segments. It also describes ongoing initiatives, proposes a TAV operating concept, and details needed actions to achieve such a capability. Chapter 5 provides similar details for the in-transit segment. Chapter 6 describes the proposed theater logistics AIS for use during contingencies, which is a critical component of the TAV program. Chapter 7 examines the role of AIT in DoD's TAV efforts. Finally, Chapters 8 and 9 provide synopses of related TAV prototyping efforts and a strategy for implementing TAV throughout DoD, respectively.

Four appendices are also part of this plan. Appendix A provides a glossary of TAV terms. Appendix B identifies acronyms used in this plan and other common TAV abbreviations. Appendix C is a summary of major DoD TAV-related initiatives. Appendix D summarizes major actions to implement this plan.

CHAPTER 2

# TAV Concept Overview

## INTRODUCTION

This chapter presents an overview of a proposed operating concept for achieving visibility over all DoD assets. That visibility includes

- Accurate and timely tracking of orders;
- Secondary item assets in-storage, in-process, or awaiting disposal worldwide;
- Unit equipment; non-unit cargo; ammunition; packaged and bulk petroleum, oil, and lubrication (POL) products; personal property; personnel in-transit; and movements of medical patients; and
- In-theater assets during contingencies and wartime operations.

The overview focuses on the concept's architecture and the principles underlying future TAV development.

## CONCEPT

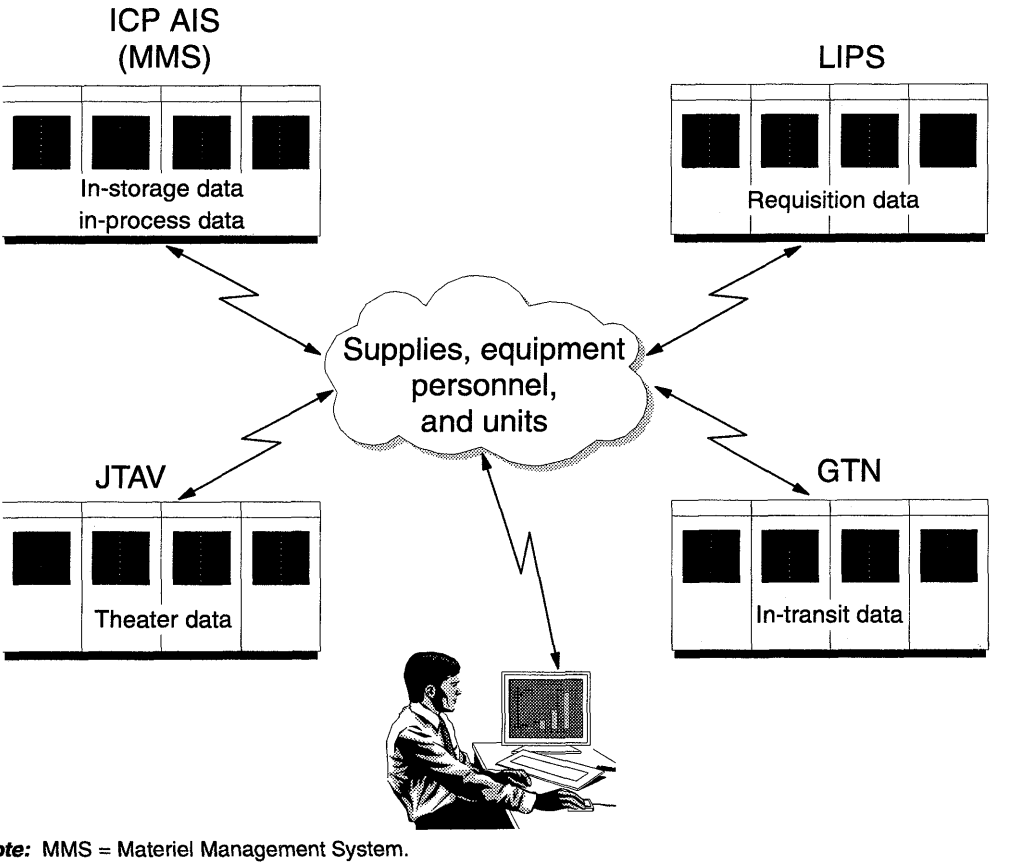
TAV will become an integral part of the Defense Information Infrastructure (DII), and as such, will provide the warfighter with an integrated, seamless environment for accessing defense logistics data.

As Figure 2-1 shows, the TAV baseline consists of three national-level systems — Logistics Information Processing System (LIPS); ICP AIS; and Global Transportation Network (GTN) — that, in turn, support the joint theater logistics management AIS that has been designated as JTAV (Joint Total Asset Visibility). The roles of these four systems in supporting DoD's TAV requirements are outlined below.

### Logistics Information Processing System

LIPS, which the Defense Automatic Addressing System Center (DAASC) maintains, currently serves as DoD's central repository for information on the status of requisitions. LIPS augments GTN by providing requisition data and

requisition shipment data to aid in monitoring the status of non-unit cargo shipments. The data in LIPS originate with requisitions and other supply-related transactions that flow among DoD units, ICPs, and sources of supply through the Defense Automatic Addressing System (DAAS).




***Note:*** MMS = Materiel Management System.

**Figure 2-1.**
***TAV Operating Concept***

Consisting mostly of retail-to-wholesale orders, LIPS will need to be enhanced to support DoD's requirements for order tracking. The needed enhancements include improving its interface with GTN to facilitate the exchange of movement data and supporting new business practices, such as inter-Service lateral redistribution, intra-Service retail-to-retail orders outside normal requisitioning channels, and retail-to-prime vendor orders where the wholesale manager only receives after-the-fact notification that an order has been placed. Some of those improvements are already underway. As an example, DAASC is working with DLA to modify LIPS to capture information on direct-vendor delivery transactions.

Chapter 3 provides additional detail on how LIPS will be used to satisfy DoD's TAV requisition tracking requirements.

## Inventory Control Point Automated Information System

ICP AIS — which refers primarily to ICP legacy systems and the emerging applications in the Materiel Management System (MMS), but also includes AISs used to manage specialized commodities — would be the permanent data repository for information on all ICP-managed in-storage and in-process assets.[1] It would maintain a variety of assets and requirements information, including

- on-hand wholesale and retail assets by location and condition code;
- wholesale assets due-in from procurement and projected delivery dates;
- items in intermediate- and depot-level repair, with projected repair completion dates; and
- requisitioning objectives and retention limits for every reporting supply activity.

Most source systems would supply data to the ICP AIS. The source systems include those supporting IMMs, wholesale distribution depots, retail supply activities, intermediate- and depot-level maintenance activities, and Defense Reutilization and Marketing Service (DRMS). Those data would reflect all changes and updates to asset quantities, status, conditions, etc. Currency and accuracy of information are critical to the success of TAV.

All organizations requiring access to the TAV data in ICP AIS would use a query-based system. The queries and responses would be designed to support a wide variety of planning requirements among headquarters activities, operational units, maintenance activities, and other users. IMMs would access the TAV data on-line if reducing procurement and repair quantities, and processing high-priority requisitions. They would not, however, redistribute the assets of deployed units. Those assets would be reported to the ICP AIS only to satisfy the stratification and inventory accounting system.

Chapter 4 of this plan describes how the ICP AIS would satisfy DoD's TAV requirements in the materiel business area.

## Global Transportation Network

USTRANSCOM is developing GTN as a command and control information system to aid in satisfying its mission of global transportation management.

[1] The systems used to manage individual commodities include the Ammunition Management Standard System (AMSS), Defense Integrated Subsistence Management System, and Fuel Automated System (FAS).

GTN consists of four modules that support current and future plans, ITV, and tracking of medical patients. The ITV module will be DoD's comprehensive data base of unit and non-unit shipment information (including military- and vendor-documented shipments); commercial carrier-generated shipment status information; booking information; passenger reservations and manifests; personal property shipment information; and vessel and aircraft scheduling data.

Thus far, USTRANSCOM has focused its ITV module development efforts on providing visibility of DoD cargo and personnel between ports of embarkation (POEs) and PODs. That capability exists as a prototype. USTRANSCOM recently awarded a contract to build the production version of GTN. That version will expand ITV capability to include Continental United States (CONUS) sources for cargo and passengers, as well as theater movements of cargo, passengers, and patients. It will also be capable of supporting the ITV concept of operations and requirements presented in Chapter 5.

## Joint Theater Logistics Automated Information System

One of the major barriers to TAV is the absence of visibility of the location and status of in-theater logistics assets. To overcome this barrier, the Joint Defense TAV (DTAV) Office proposes development of JTAV to provide an in-theater TAV capability. Theater CINCs and JTF commanders would use the logistics information in JTAV to enhance the planning for the deployment, reception, and onward movement of forces and materiel; the diversion of forces and materiel in-transit, if required, to meet changing contingency requirements; the management of in-theater assets to improve their utilization, cross-leveling, and distribution; and the redeployment of forces and retrograde of materiel.

Through JTAV, theater logisticians would be able to access in-transit, in-storage, and in-process information in LIPS, ICP AIS, and GTN. JTAV would merge this information with in-theater unit information and other in-theater-related logistics information for both inbound and outbound assets. Its architecture would consist of a fully and quickly deployable "suite of hardware." The warfighting CINCs would have a JTAV suite maintained as a fully functional system and use that suite routinely in peacetime to provide a seamless transition to war.

Chapter 6 discusses the operating concept for JTAV in more detail, along with its operating principles. Of the four AISs comprising DoD's TAV concept of operation, however, JTAV is the least defined and developed. As a consequence, its operational concept needs to be refined and focused as DoD gains valuable experience through the prototyping and demonstration efforts discussed in Chapter 8.

## System Integration

Although some TAV users could satisfy their visibility requirements by accessing only one of the four systems, others may require visibility of assets that are tracked in more than one system. As an example, theater users could require visibility over not only assets moving in their theater, but also those in other theaters, whether in-storage, in-process, or in-transit. These types of visibility requirements should ultimately result in DoD integrating the four systems.

While integration of the four systems is not feasible in the short-term, DoD should develop a phased plan for the long term. Since the interfaces between GTN and LIPS; between LIPS and ICP AIS; and between JTAV and the other three systems have already been identified, they could serve as the foundation for an interim integration effort. In the long term, an open systems architecture among the four systems should provide users with a comprehensive TAV capability.

In cases where DoD supply support is provided through contracts, open systems architecture should also help to facilitate TAV integration with commercially operated systems performing ordering and shipping functions.

## Principles Underlying Future TAV Development

The following principles underlie DoD's efforts to achieve TAV:

- Robust communications will support electronic commerce/electronic data interchange (EC/EDI) transactions among individual systems.
- Near real-time processing will be the focus of all TAV system upgrades while retaining the capability to perform queries in a batch processing mode.
- A central router of data, such as DAAS, is preferred over multiple routers to ensure comprehensive coverage and compliance, reduce maintenance costs, and avoid duplication of effort in networking data.
- To the extent possible, users will use a singular point of entry to access TAV information.
- DoD's logistics systems will use an open systems architecture to ensure interoperability regardless of the hardware platforms or software applications.
- TAV development will follow the Technical Architecture for Information Management (TAFIM) and, where possible, will rely on commercial standards and products that support DoD requirements.

- AIT will be fully integrated with existing and emerging logistics systems.
- Economic analyses will be used to develop the costs and benefits of TAV capabilities and thereby ensure that associated investments will produce satisfactory returns.
- DoD Components will need to modify their logistics cultures from "unit ownership" to "unit ownership with national visibility and access."
- Development and use of standard data elements for application across all phases of an asset's life cycle will greatly strengthen DoD's ability to provide TAV.
- Standardization of common asset management procedures and processes contributes to the integration of TAV functions.

# TAV Features

The key features of the TAV architecture are the data bases of asset information, the ability to assess and update that information, and the ability to act on the information. These features are briefly expanded upon below.

## Data Bases

All of the four TAV systems will be supported by one or more physical data bases. LIPS, ICP AIS, and GTN will each contain DoD-wide asset information, while JTAV will contain information only on assets within, coming to, or leaving the theater of operations. Each system will provide the user a point of entry to the information in its respective data bases. As TAV systems become more closely integrated, information will be shared and accessible across systems to provide users with a broader visibility of TAV information from a single entry point.

## Accessing and Updating TAV Information

DoD organizations and activities need the capability to rapidly access TAV information and automatically update it with minimal human involvement. Real-time connectivity among data bases located throughout the world clearly presents a number of major technical challenges. To ensure this connectivity is developed in a timely manner, DoD may need to sponsor additional advanced concept technology demonstrations, such as those described briefly in Chapter 8.

Expanded use of AIT would enable DoD Components to rapidly and accurately identify assets that are in-storage, in-process, or in-transit. Chapter 6 of this plan examines the potential application of AIT to DoD's TAV program.

Accurate and complete source data will be the key to TAV. Additional source data entry edits may be required to ensure the accuracy and integrity of standard transactions, conventions, and data elements.

## Acting on TAV Information

Although DoD's TAV program appears to emphasize the visibility of assets, the capability to act on TAV information is paramount. For example, a retail item manager with a critical need for an item would want to know that the wholesale manager filling that need has visibility of retail assets worldwide and is capable of directing a particular shipment regardless of owning Military Service or activity. With visibility of inbound materiel, commanders would be able to better assess when their units are ready for combat. These and other capabilities to act upon TAV information will result in numerous changes to user systems to accommodate the new business practices evolving from the TAV effort.

# SUMMARY

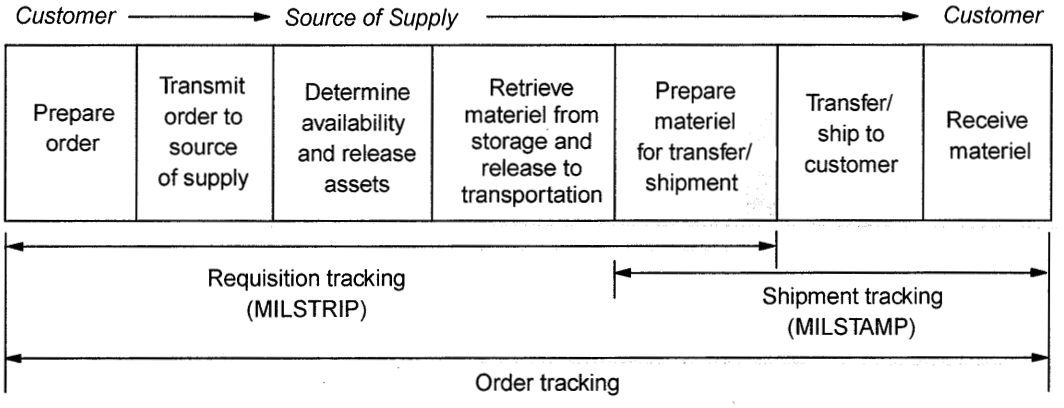
This chapter presents an overview of a proposed TAV operating concept. It also identifies the four AISs that are key to making the concept operational, discusses some of the concepts features, and concludes with a listing of the principles underlying the TAV effort. The details of the proposed operating concept are presented in the next four chapters.

CHAPTER 3

# Tracking Requisitions

## BACKGROUND

Although TAV focuses on all assets that are in-storage, in-process, and in-transit, it also includes the status of requisitions for those assets. As Figure 3-1 illustrates, filling a customer's order for a particular asset entails a number of actions — the customer prepares the order and transmits it to the source of supply; the source of supply determines if the asset is available, releases the asset, and prepares it for shipment to the customer; and the shipping activity arranges for moving the asset to the customer. The first four of those steps are associated with the requisition. The asset is still in-storage, but a customer has placed a requisition for it and the source of supply is processing the requisition and preparing the asset for shipment. Although DoD provides some requisition and shipment status information to customers, that visibility is often restricted during contingency operations because of limited access to assured communications and limited logistics information provided to the theater of operations.




***Note:*** MILSTRIP = Military Standard Requisition and Issue Procedures; MILSTAMP = Military Standard Transportation and Movement Procedures.

**Figure 3-1.**
***Processing Orders for Materiel***

A requisition is not an asset per se, but rather an order for an asset from an established, authorized organization (i.e., either internal or external to the DoD with an assigned Department of Defense Activity Address Code). It could be transmitted electronically to a supply source; it could also be sent by mail or message, communicated telephonically, or hand carried. The supply source could be within the DoD or external to it, such as the General Services Administration, Federal Aviation Administration, or other organization assigned management responsibility for specific categories of materiel. Finally, all requisitions are prepared and processed in accordance with Military Standard Requisitioning and Issue Procedures (MILSTRIP).

Under MILSTRIP, supply sources are required to provide various information on the status of requisitions. That information includes an exception supply status (e.g., backordered); a 100 percent or positive supply status (e.g., being processed for release and shipment); a rejection status (e.g., unable to process because of errors in quantity, date, or serial number fields); a direct delivery notice; or a shipment status (e.g., date released to carrier). Although MILSTRIP provides this information, its status reporting has three primary shortcomings as a requisition tracking mechanism:

- It is not real-time because DoD's wholesale and retail systems use batch processing cycles to generate the status documents that are triggered by an action (i.e., a rejection by the inventory control point, an issue, or a backorder).

- Because of DoD's batch processing environment, it could take two to five days after an ICP receives a requisition before an end user receives any supply status information.

- Status information may not be reaching the appropriate supply support activity.

These shortcomings need to be corrected before TAV can become a reality throughout DoD.

DoD is in the process of finalizing the implementation conventions for communicating enhanced military standard transactions using American National Standards Institute (ANSI) Accredited Standards Committee X12 EDI formats. When completed, the Defense Logistics Management System (DLMS) will allow DoD Components to exchange logistics information more easily both internally and with commercial industry.

# REQUIREMENTS

DoD's requirements for tracking requisitions are listed below.

- End users require visibility of delivery quantities and expected delivery dates of all materiel in-transit to prevent submitting duplicate requisitions. Requisition information should be made available to ordering units, where the status of individual requisitions is most important.

- Retail supply activities and other requisitioning organizations require visibility of outstanding requisitions so they can respond to end-user queries on the expected availability of all assets on order, determine if alternative actions need to be initiated to fulfill current materiel requirements, and plan receipt workloads. In this application, visibility includes current status of requisitions (such as awaiting processing, being processed, accepted and being processed, or rejected or canceled); delivery quantities and dates; acknowledgments of modifications and cancellations; and current status of materiel in-transit to fulfill requisitions.

- Headquarters and major commands require visibility (current status of requisitions, delivery quantities and dates, or materiel in-transit to fulfill requisitions) of outstanding requisitions to monitor the status of critical orders.

- CINC and JTF planning staffs require visibility (current status of requisitions, delivery quantities and dates, or materiel in-transit to fulfill requisitions) of outstanding requisitions to assess contingency operations and prepare operational plans.

- Intermediate- and depot-level repair activities require visibility (current status of requisitions, delivery quantities and dates, or materiel in-transit to fulfill requisitions) of on-order materiel needed for repair to schedule workload and status of repair actions that are awaiting parts.

- Logistics managers throughout the supply system require the capability to track requisitions for purposes of capturing various logistics performance data. These data should include raw performance measures as well as key statistics such as means and variances.

# CURRENT CAPABILITIES AND ONGOING INITIATIVES

DoD has already recognized the need for improving its ability to track requisitions. Its two primary tracking efforts are LIPS and GTN.

DAASC has fielded the initial capability of LIPS as DoD's central repository and standard query system for tracking requisitions and reporting on logistics

response times. LIPS captures information on MILS transactions that flow through DAAS; it also captures other data that are input into DAAS.

USTRANSCOM is developing GTN as DoD's central repository for transportation data. GTN captures movement information from transportation AISs in accordance with Military Standard Transportation and Movement Procedures (MILSTAMP).

# Operating Concept

This section presents an operating concept for satisfying DoD's requirements for tracking materiel requisitions. It begins with three underlying principles, discusses several characteristics of the proposed operating concept, and concludes with a synopsis of the functional roles of DAASC and USTRANSCOM.

## Principles

The proposed operating concept has three underlying principles that are discussed below:

- TAV requisition tracking will neither eliminate nor replace MILSTRIP status reporting; sources of supply will continue to provide MILSTRIP status information to requisitioning organizations.

- Timely and accurate status information will instill user confidence in the materiel management system and greatly reduce the number of customers generating multiple orders to fill a single requirement.

- Timely and accurate pipeline status information is essential to assess the capability of DoD's logistics system to support operational and contingency plans, and weapon system readiness.

## Operating Characteristics

The proposed operating concept for tracking customer orders is illustrated in Figure 3-2. That operating concept has the following characteristics:

- Requisition tracking will consist of a real-time query capability that will enable users to monitor the status of all requisitions, including follow-up requisitions; reinstated requisitions; requisition modifier documents; and redistribution, referral, and materiel release orders.

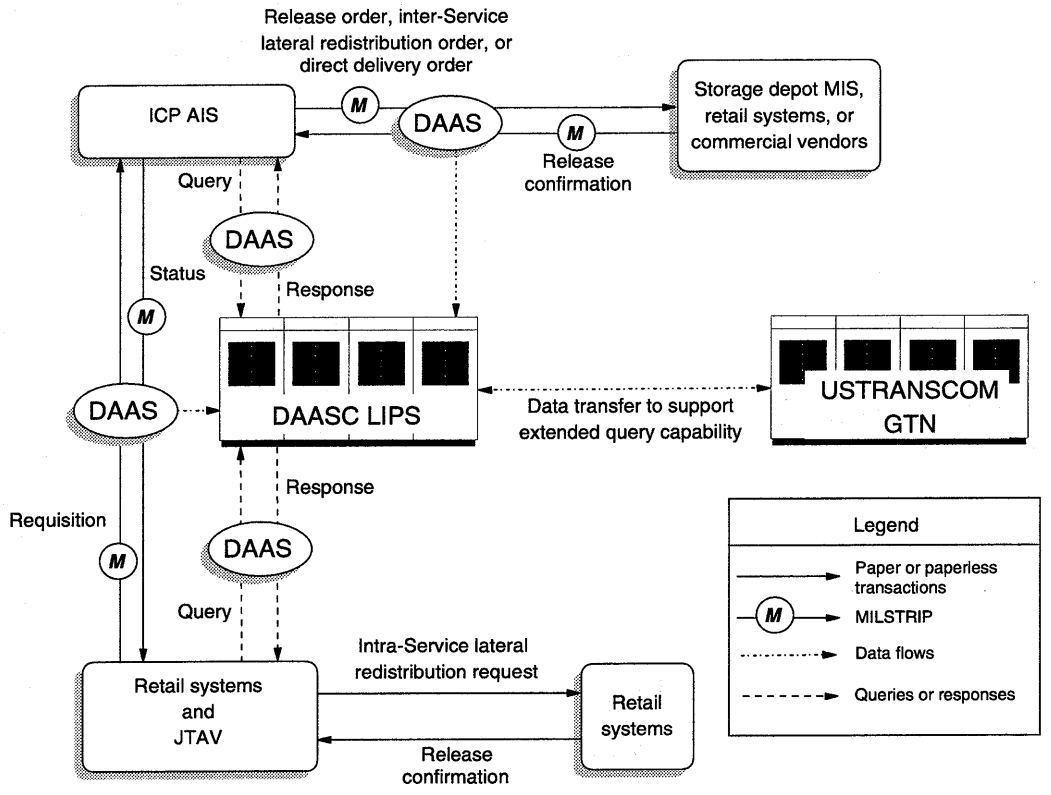



**Figure 3-2.**
***Requisition Tracking — TAV Operating Concept***

- LIPS will be the primary data repository for requisition status data. As such, it will serve as the single information source for DoD organizations or other authorized activities that need information on the status of requisitions.

- Through its interfaces with DAAS and GTN, LIPS will track orders from the date they are placed, through source of supply, depot processing, and shipment, until they are received. LIPS will also collect information on all direct-vendor delivery actions (i.e., requisitions for which vendors serve as shipping activities) and provide a relational data base capability to include sort functions capable of generating performance reports as required by TAV users.

- Requisitions filled by means of intra-Service lateral redistributions will be tracked only at the local Military Service level.

- Requisitions filled by means of inter-Service lateral redistributions will be managed and controlled by IMMs and tracked by ICP systems.

- During peace or war, LIPS will interface with JTAV to provide CINCs and JTF commanders with direct access to the most current information on the status of all theater-originated requisitions.

- LIPS will provide requisition data to DoD Component systems (such as the Army's Logistics Intelligence File) that maintain historical data bases and analytical capabilities tailored to their unique needs.

## Functional Roles

Two organizations — DAASC and USTRANSCOM — are key to making this operating concept viable. DAASC needs to maintain an up-to-date transaction data and user query capability in LIPS. USTRANSCOM needs to work with DAASC to ensure that all transportation data required to answer user queries about the status of their requisitions are provided to LIPS.

# Issues and Actions

Although this operating concept poses few major adjustments to DoD's logistics practices, several enhancements need to occur before requisition tracking can become a reality. The issues underlying those needed enhancements and the associated actions are detailed below.

*Issue 1.* Since all wholesale requisitions submitted to IMMs do not go through DAAS, LIPS will not have the information necessary to provide the desired visibility over the status of requisitions.

*Action.* Review, and revise as required, Military Service and Defense agency procedures to ensure that all wholesale requisitions are either routed through DAAS or images are provided to DAAS for inclusion in LIPS. Closely associated with this action, the Office of the Secretary of Defense has already tasked DoD Components to provide plans for accomplishing legacy system changes to ensure that requisitions, status, shipment status, and receipts for all supply classes and commodities are passed to DAAS.

*Action.* Fully develop policy and implement procedures that require receiving activities to provide receipt information via DAAS to IMMs. Approved MILSTAMP Change Letters (AMCLs) 11 and 15 and DLMS 2.0 provide policy and procedures for expanded materiel receipt acknowledgment.

*Issue 2.* Redistributions among DoD Components not managed by IMMs do not flow through DAAS. Without information on these redistributions, IMMs have incomplete information on demands to assess actual requirements.

*Action.* Provide demand data on non-IMM-managed redistributions to IMMs via DAAS to aid in determining requirements.

*Issue 3.* Before requisitions are sent to sources of supply, they are processed locally. Since LIPS has no visibility over that processing, it cannot respond accurately to inquiries about the status of those requisitions.

*Action.* Modify all local customer interfaces to LIPS to ensure that they contain logic that verifies local status before forwarding queries to LIPS.

*Issue 4.* The capability of DoD Components to track a requisition through its life cycle is limited.

*Action.* Ensure that GTN and LIPS share sustainment, supply, and related transportation data to provide a complete life-cycle tracking of DoD requisitions.

*Issue 5.* Significant shortcomings exist in the use of MILSTRIP status reporting as a requisition tracking mechanism.

*Action.* Improve the MILSTRIP status reporting process to end users.

*Issue 6.* Although this plan provides for intra-Service lateral redistribution tracking, the specific requirements for this visibility need to be established.

*Action.* Determine, in cooperation with the Military Services, the reporting requirements for intra-Service lateral redistributions.

CHAPTER 4

# Materiel Business Area

## INTRODUCTION

The materiel business area encompasses two of the three segments of TAV — in-storage and in-process. For each of these segments, this chapter examines DoD's requirements for TAV, describes ongoing initiatives to provide that visibility, proposes an operating concept to obtain the desired visibility, and identifies several actions for making TAV a reality. The in-storage section of this chapter addresses DoD's TAV requirements for its two levels of supply (i.e., wholesale and retail), while the in-process section examines the unique requirements of DoD's maintenance and procurement functions.

## IN-STORAGE

Materiel assets in-storage encompass all classes of supply, whether categorized as wholesale or retail. Wholesale assets, which are owned by the IMMs and include all DRMS assets, are available to fill requisitions from DoD customers worldwide. For purposes of asset visibility, retail assets are all assets maintained below the wholesale echelon of supply excluding those that are "in-use." All in-use retail assets are in the possession of customers and expended from an inventory manager's records.

### Requirements

#### WHOLESALE LEVEL

For TAV purposes, visibility of wholesale assets in-storage means information on stock balances by condition code and purpose code, while visibility of materiel requirements means information on reorder points, requisitioning objectives (ROs), and retention limits. DoD's requirements for visibility of its wholesale assets in-storage include the following:

- IMMs require visibility of all wholesale assets they directly manage for purposes of selecting assets to fill customer requisitions, determining procurement quantities, replenishing asset levels, and making repair and disposal decisions.

- IMMs serving as Primary Inventory Control Activities (PICAs) for reparable items require visibility of all Secondary Inventory Control Activity (SICA) assets and requirements.

- IMMs, serving as SICAs, require visibility of the assets and requirements of the associated PICA to assess its capability to support the IMMs' requirements.

- IMMs require visibility of all DRMS assets to fill replenishment needs and unplanned customer requisitions.

- Retail inventory managers require visibility of wholesale assets for planning purposes and answering customer questions on future availability of stock.

- End users and intermediate-level maintenance organizations require visibility of wholesale assets to execute their materiel and operational planning responsibilities.

- Depot-level maintenance managers require visibility of serviceable wholesale assets for maintenance planning and expediting purposes.

- Depot-level maintenance managers require visibility of unserviceable wholesale assets to prepare workload induction plans.

- Logisticians on various staffs — CINCs, JTF commanders, Military Services, major commands, and weapons system managers — require visibility of wholesale assets to assist operating forces in resolving materiel problems and assessing the logistics consequences of operational plans.

### Retail Level

Visibility of retail assets consists of stock balances by condition code and assets on order. All on-order assets that are "due-in" from local purchase and local repair should be identified separately from other due-in assets. Like wholesale assets, retail asset information means reorder points, ROs, and retention limits. DoD's requirements for visibility of retail assets include the following:

- IMMs require visibility of retail assets and requirements to assist in filling customer orders through retail-to-retail lateral redistribution actions, forecast requirements, generate or defer buys and repairs, and prepare integrated retail and wholesale stratifications and annual inventory reports.

- Intermediate-level retail supply activities require visibility of subordinate consumer-level retail assets and requirements so that they can fill requisitions or redistribute assets within normal supply support channels, before seeking additional assets from the wholesale system or other retail supply activities.

- Intermediate- and depot-level maintenance activities require visibility of assets at supporting retail supply activities to schedule their repair workloads and provide better information on the status of repair actions that are awaiting parts.

- Headquarters and major commands require visibility of retail assets and requirements to assist in assessing mission capabilities, contingency operations, and planned requirements.

- Weapons system managers require visibility of retail assets and requirements to assess logistics support capabilities and track item usage.

- Consumer-level retail activities require visibility of assets at intermediate-level retail supply activities (only within the same DoD Component retail supply chain, however) to support requests from local commanders for supply support assessments of requirements, such as those associated with field training exercises or contingency operations.

## Current Capabilities and Ongoing Initiatives

DoD Components are developing several AISs with the capability to provide some visibility over the status of in-storage assets. They have also launched a number of other initiatives aimed at enhancing that visibility. Listed below are some of those AISs and initiatives. Many of these systems will eventually be subsumed into migration or new systems resulting from CIM efforts.

### Wholesale Level

Listed below are several new AISs and initiatives that DoD Components are pursuing at the wholesale supply level:

- MMS is a series of applications, which the Joint Logistics Systems Center (JLSC) is developing for use at ICPs and other activities.

- Logistics Asset Support Estimate (LASE) gives users the capability to query the status of DLA wholesale assets using MILSTRAP.

- Army Total Asset Visibility (ATAV) provides visibility of Army wholesale assets; the Army plans to extend ATAV to DLA assets in the near future.

- PICA-SICA redistribution is an initiative aimed at sharing wholesale and retail asset information between PICAs and SICAs.

- Interrogation Requirements Information System (IRIS) provides visibility of DRMS assets.

- Logistics Information Network (LINK) provides a query capability with an electronic, mail-based response to provide visibility of DLA, Military Service, General Services Administration, and DRMS assets.

### Retail Level

Listed below are several AISs and initiatives that DoD Components are pursuing at the retail supply level:

- MMS, as noted previously, also provides visibility of both retail and wholesale assets.

- ATAV also provides visibility of Army retail assets down to supply support activities at the division level.

- Defense Program for Redistribution of Assets (DEPRA) is a central system for screening and redistributing excess DoD assets.

- Fleet Inventory Management and Analysis Reporting System (FIMARS), a Commander Naval Surface Forces Atlantic (COMNAVSURFLANT) program, provides visibility of shipboard materiel assets.

- MICAP [Mission Capable] Asset Sourcing System (MASS) is a personal computer-based system designed to assist in filling high-priority requirements with retail assets in the Air Force's Standard Base Supply System (SBSS).

- Navy Total Asset Visibility (NAVTAV) provides extensive visibility and lateral redistribution capability for Navy inventories.

- Objective Supply Capability (OSC) is an Army initiative aimed at providing visibility of assets that are available within a specific geographical area.

- Reparable Assembly Management Process (RAMP) provides visibility over retail assets at Air Force bases and depots.

- An interface between Standard Automated Materiel Management System (SAMMS) and SBSS provides visibility of Air Force-owned, DLA-managed retail assets to fill DLA backorders and offset DLA procurements with Air Force retail assets.

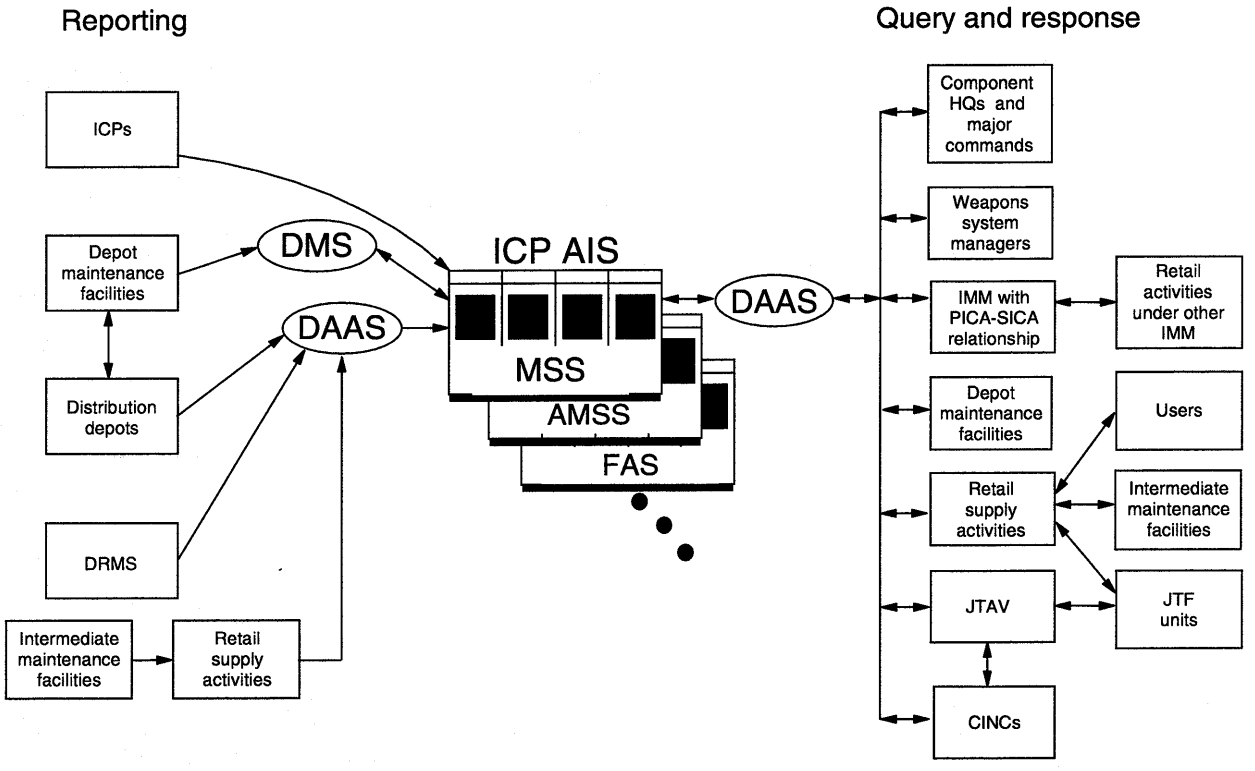
- An interface between SAMMS and Navy's Virtual Master Stock Item Record (VMSIR) provides visibility of Navy-owned, DLA-managed retail assets to fill DLA backorders and offset DLA procurements with Navy retail assets.

- A planned interface between SAMMS and ATAV will provide visibility of Army-owned, DLA-managed retail assets to fill DLA backorders and offset DLA procurements with Army retail assets.

# Operating Concept

## Overview

Figure 4-1 presents an overview of the DoD TAV operating concept for the in-storage and in-process segments. The ICP AIS would serve as the central data base for all in-storage and in-process TAV data. DoD's long-term CIM strategy is to replace existing ICP systems with MMS. However, management of selected commodities, such as fuel, subsistence, ammunition, clothing and textiles, may continue under separate systems, such as AMSS and FAS, among others.




***Note:*** HQs = Headquarters.

**Figure 4-1.**
***In-Storage and In-Process — DoD TAV Operating Concept***

Figure 4-1 also shows that the concept of operations would require most ICP, supply, maintenance, distribution, and DRMS activities to submit data on their assets and requirements through DAAS to the central data base. Users would normally request information through their parent organizations or use DAAS to query that same data base. However, users may submit queries directly to the ICP AIS. On-line access would be the preferred method; however, off-line reporting capabilities and requirements would also need to be supported.

## Principles

Several principles serve as a foundation for this operating concept:

- ICP AIS will be the central repository for all wholesale and retail asset information. Current asset and requirements data that are not available to the ICP through on-line access will be "pushed" to ICP AIS by the custodian of the assets.

- Visibility of wholesale assets is key to accurate assessments of the capability of DoD's logistics system to support operational and contingency plans, maintenance plans, and weapons system readiness goals.

- Visibility of retail assets throughout DoD will maximize national military readiness, not just the readiness of activities to which those assets have been entrusted.

- Visibility of retail assets will facilitate the lateral redistribution of retail assets, which, in turn, will reduce logistics response times and improve the operational readiness of weapons systems.

- Visibility of retail assets will reduce weapons system costs by providing information on retail assets that IMMs can use to satisfy requisitions, defer wholesale procurements, and reduce depot repairs.

- AIT will be used to identify materiel assets in-storage; it will also be integrated into every AIS used to manage wholesale or retail storage activities.

- IMMs will assume ownership of excess retail assets and control them "in place."

- IMMs will not redistribute assets of deployed units; assets held by other deployable units will be accessed only if all other sources have been depleted. IMMs will work through the Joint Logistics Board of every involved CINC for inter-theater redistribution and the affected CINC or JTF commander for intra-theater redistribution.

## Operating Characteristics

The overview of the proposed TAV operating concept in Chapter 2 provides just a hint at how DoD, by implementing such a concept, would satisfy its TAV requirements. Some of the operating characteristics of that concept are described below:

- Headquarters logistics organizations, IMMs with PICA-SICA relationships, and retail customers that requisition materiel directly from IMMs would be capable of submitting queries about specific assets directly to the central data base. Consumer-level activities would have visibility of assets through

their supporting retail supply activities. They would be capable of submitting queries for a single national stock number (NSN), part number, a set of NSNs and part numbers, along with industry standards (such as National Drug Codes used by the medical industry).

- Repair activities that are funded through the Defense Business Operating Fund (DBOF) and retail supply activities would report their assets and requirements to ICP AIS. The lowest retail supply activities with such a reporting requirement (the "redistributable levels") are
  - Army — direct support authorized stockage lists
  - Navy — shipboard and major shore stations
  - Air Force — base supply
  - Marine Corps — installation supply and Marine Expeditionary Force support activities.
- Retail supply activities that requisition directly from IMMs would report their asset and requirements data to those IMMs. These data would be available to the ICP AIS in a manner supporting rapid access and processing. All retail data would be provided to the IMMs by a combination of periodic file transfers and transaction item reports (TIRs). IMMs would be updated as frequently as practical following a change in requirements or assets, but always within 24 hours after the change.
- All retail data would be supplied to IMMs through DAAS. Retail activities would have the option to report their assets and requirements en masse.
- Intermediate-level retail supply activities that support consumer-level retail supply activities, and have visibility over the consumer-level assets and requirements, would report those data to IMMs. In these situations, consumer-level retail activities would report their data only to the intermediate-level retail activities. ICP AIS would identify the retail supply activities that have custody of all reported assets.
- Based on PICA-SICA relationships, retail supply activities in different Military Services could report asset information to different ICPs for the same items. The PICAs and SICAs would not push this information to each other, but provide it when required by high-speed query capability.
- The Military Services would have the option to internally redistribute their retail-level assets before requisitioning from the wholesale level. However, cross-service lateral redistribution will be managed and controlled by the associated IMM, except overseas where cross-service lateral redistribution will be under the direction of theater CINCs. In all cases, the respective IMMs would be informed of all redistribution efforts so that they could maintain accurate records.

- CINCs or JTF commanders would be responsible for all inter- and intra-Service redistribution of theater stocks.

- IMMs would manage all retail-to-retail inter-Service redistributions. The following guidelines would apply to all IMM-directed redistributions:

  - Supply levels for deployed units or units participating in field training exercises would be exempt from redistribution by IMMs. To stabilize the inventory stratification system, those units would continue to report their assets at least monthly.

  - IMMs would have access to retail assets above the RO for satisfying requisitions, regardless of priority, and offsetting wholesale procurement and repair requirements.

  - During crises or contingencies, retail assets below ROs would be made available for high-priority requisitions. In peacetime, the Military Services would have the option to make assets below ROs available for high-priority requisitions. High-priority requisitions are either Issue Priority Group I or II with a not-mission-capable-supply code or Joint Chiefs of Staff project code.

  - IMMs would have the option to access assets of deployable units that are neither deployed nor in field training exercises for redistribution. However, these assets would be redistributed only if all other materiel sources have been exhausted.

  - Retail activities would be reimbursed for all IMM-directed inter-Service lateral redistributions. The amount reimbursed would equal the standard price of the asset plus a standard packaging, handling, and transportation cost. IMMs would receive credit for those sales and bill requesting activities for the standard price of the materiel.

  - Retail activities making lateral redistributions would comply with Uniform Materiel Movement and Issue Priority System (UMMIPS) timeframes and provide status to the IMM, who will then generate the necessary status information to the affected organizations.

- IMMs would have visibility over all DRMS assets. ICP AIS would provide customers with DRMS asset positions when queried about the complete wholesale stock position.

- When current retail assets and requirements become visible to IMMs, retail supply activities would not need to periodically report assets above the retention limit.

- All supply and distribution activities would interface AIT devices with their AISs.

## FUNCTIONAL ROLES

The functional responsibilities of the proposed TAV operating concept are detailed below:

- JLSC would ensure that MMS can accommodate TAV requirements for rapid responses to customer inquires, interfaces between PICAs and SICAs, IMM interfaces with DRMS, and tracking of in-place retail excesses transferred to IMM ownership.

- IMMs would

  - determine if requisitions should be filled from wholesale stocks, direct-vendor delivery, or lateral redistribution by balancing customer requirements with cost-effectiveness;

  - offset wholesale buys and repairs with retail assets beyond ROs;

  - determine if retail excesses should be retained in place to meet near-term retail requirements, returned to the wholesale system, or released to retail managers for disposition;

  - reimburse retail supply activities for costs incurred when providing lateral support at the IMM's direction;

  - respond to queries from other IMMs with PICA or SICA roles for information on current assets, requirements, and availability of materiel for inter-Service support;

  - provide supply and shipment status to requisitioners and be responsive to customers until their requirements are satisfied (to include the processing of discrepancy reports);

  - use retail asset visibility to prepare stratifications and annual inventory reports.

- Retail supply activities, including those at the redistributable level, would

  - provide IMMs with the asset and requirements information needed to make economical and readiness-based decisions on lateral redistribution, procurement, and repair;

  - comply with UMMIPS timeframes when making lateral redistributions and provide status information to IMMs through DAAS;

  - make asset information available to supported intermediate- and depot-level maintenance organizations for making schedule decisions and reporting status on repair actions awaiting parts;

- make asset and requirements information available to consumer and intermediate supply activities in the same vertical supply system;
- report to IMMs any changes in stock balances and condition of all IMM-owned assets in their custody;
- process and respond to all inquiries for visibility of wholesale assets from supported customers.

- DRMS would update IMMs whenever its asset positions change.
- Military Services would develop procedures for implementing DoD's business rules for redistributing wholesale and retail assets, whether intra- or inter-Service, consistent with the above operating characteristics. They would also submit these rules to the Office of the Secretary of Defense for approval.
- DAASC would support the routing of all TIRs, file transfers, queries, and other logistics communications necessary to provide for visibility of and access to retail assets. It would also monitor asset reporting, as described above, to prevent loss of data.

## Issues and Actions

The proposed operating concept for in-storage assets can become a reality only if DoD completes the following actions:

*Issue 1.* The effectiveness and completeness of DoD's business rules governing retail redistribution need to be improved. They should be based on an economic analysis that balances supply effectiveness, unit readiness, transportation costs, multiple handling of materiel, and logistics response times.

*Action.* Review and improve business rules for redistributing retail assets.

*Issue 2.* DoD has not issued any formal policy on when IMMs should assume control of excess retail assets in place and how IMMs would treat the associated inventory levels (wholesale and retail), carrying costs, and uses.

*Action.* Develop and publish policy clarifying when IMMs should assume control of excess retail assets in place.

*Issue 3.* Although the proposed in-storage operating concept calls for DoD-wide visibility of DRMS assets, no existing business rules govern their usage by materiel managers who are not IMMs.

*Action.* Develop business rules governing when and how activities other than IMMs would have access to DRMS assets. Those business rules should have a DoD-wide perspective and consider quality, response time, and costs.

# IN-PROCESS

In-process assets are items that are being either repaired or procured. They include items that are in repair at depot-level repair organizations, both organic and commercial; in repair at intermediate-level repair organizations; or on order from DoD vendors and not yet shipped. These assets are categorized as either "due in from maintenance" or "due in from procurement" in DoD inventory management systems.

Visibility of items being repaired begins with the turn-in of an unserviceable asset to supply for repair at either an intermediate- or depot-level maintenance facility, and it ends when the repaired asset is shipped to a customer or placed in storage. For items being procured, visibility begins when an item manager prepares a request to procure an asset and ends when a DoD Component representative inspects and issues a receipt for the ordered asset.

DoD's TAV requirements, ongoing initiatives, and actions for each of these in-process components are addressed separately below.

## Maintenance

In-process repair assets serve as a priority source of resupply for DoD users. DoD's requirements for in-process repair visibility range from detailed data, such as estimated completion dates and condition code changes by specific stock numbers and serial numbers, to broad aggregated data, such as capacity planning information. For example, an IMM could require information on changes in condition codes and other status reporting data elements by line item and serial number to provide accurate status and delivery dates for requisitions. On the other hand, some headquarters could require only broad, aggregate data to support programming, budgeting, and readiness assessments.

### REQUIREMENTS

Both logistics and operational managers require greater visibility of in-process repair assets. Logistics managers and some operational managers need information on the percentage of an order or induction quantity that is complete; the time (in days) required to complete a given number of units; and the repair and flow days by line item. They also need to know the earliest date that a unit could be completed by expedited repair; the projected repair backlogs; the reason for any backlogs (e.g., shortage of parts or inadequate maintenance capacity); and the projected completion quantities by line item and day.

Operational managers require in-process data to assess capability changes that may occur as a result of assets being made serviceable. In the case of unique or specialized items, or critical items with limited availability, operational

managers may require precise data to manage effectively. In other cases, they may require only aggregate data.

Other requirements for visibility over DoD's assets being repaired are listed below:

- Office of the Secretary of Defense requires visibility over broad categories of in-repair assets to monitor logistics system performance; support major industrial mobilization decisions; and evaluate policy, budget, and procurement alternatives.

- Joint Staff requires aggregate visibility to resolve logistics bottlenecks affecting CINCs' requirements, identify critical assets and logistics support priorities for CINCs, and support deliberate planning and allocation of logistics resources.

- Military Service headquarters require aggregate visibility to support deployment and sustainment operations; monitor status and location of critical, Service-owned assets; and support Military Service policy, budget, and procurement decisions.

- ICPs and IMMs require detailed visibility of assets at depot- and intermediate-level maintenance organizations to fill customer orders, monitor and provide accurate status and delivery dates for requisitions, make decisions on directing new repairs and procurements, negotiate with depots in planning and scheduling repairs, and renegotiate workloads based on critical shortages.

- Weapons systems managers require both aggregate and detailed visibility of assets at depot- and intermediate-level maintenance organizations to assist in the planning, deployment, management, and support of the principal items and weapons system; complete sustainability estimates; and perform programming, budgeting, and readiness assessments.

- Major commands require visibility of assets at depot- and intermediate-level maintenance organizations when assessing the ability of their forces to execute planning scenarios, manage critical items with limited availability, support deployment and sustainment operations, monitor status and location of assets owned by or of concern to the command, and make financial decisions.

- CINCs require aggregate visibility of assets at depot- and intermediate-level maintenance facilities to assess the readiness of their forces, manage critical items with limited availability, identify logistics bottlenecks in satisfying their requirements, identify theater-critical assets, formulate logistics priorities, support deliberate and crisis planning, and determine asset and lift requirements.

- JTF commanders require aggregate and detailed visibility to manage critical items with limited availability, identify logistics bottlenecks in satisfying JTF requirements, identify critical assets, establish logistics priorities, and support deliberate and crisis planning.

- Maintenance and production facilities require detailed visibility to plan, prioritize, and distribute workload and resources; determine the disposition of inbound reparables; monitor the status and location of assets supporting the repair process; support evaluation of repair performance; monitor the status and location of serviceable and unserviceable assets at intermediate maintenance facilities and depots; monitor the status and location of vendor-repaired assets; and identify materiel and equipment requirements to support programmed workloads.

- Retail supply managers require detailed visibility of due-outs from depot- and intermediate-level maintenance facilities to anticipate near-term replenishments, preclude redundant shipments, and help maintenance managers forecast readiness and make cannibalization decisions.

## Current Capabilities and Ongoing Initiatives

DoD Components have already developed a number of systems and processes aimed at providing visibility over the status and location of assets being repaired. They also have several other initiatives under development. Those systems, processes, and initiatives are summarized below.

- Advanced Traceability and Control (ATAC) Plus will provide accountability, control, and visibility of assets in-process. It is a Navy project that will support visibility of assets from point of failure through the repair process to their return to a serviceable condition or issue to a customer.

- Advanced Traceability and Control — Air Force (ATAC-AF) is a management tool for analyzing logistics (supply, maintenance, and transportation) pipeline data for unserviceable, serviceable, and consumable assets.

- Commercial Asset Visibility (CAV) provides visibility and control over reparable assets in commercial contractor repair facilities. CAV II, which was implemented in 1988, has been established as the Navy's commercial asset tracking system. In 1992, JLSC chose CAV II as the platform for DoD Commercial Asset Visibility (DOD-CAV) reporting. DOD-CAV is to incorporate the functional requirements of all Military Services.

- Depot Maintenance System (DMS) will be the product of an initiative to develop a DoD system to perform maintenance scheduling and specialized support functions (such as hazardous materiel, tool information, facilities, and equipment management) for depot maintenance.

- Integrated Sustainment Maintenance (ISM) focuses on central management and workloading of all sustainment maintenance activities in the Army.

- Distribution and Repair In a Variable Environment (DRIVE) is an Air Force initiative that establishes priorities for depot repair and distribution actions to maximize the probability that base aircraft availability goals will be met. The Air Force's production DRIVE system is designed to set priorities for depot repair actions and distribution of serviceable assets (from stock, repair, buy, or contract sources) for reparable assets.

- LINK provides visibility of materiel in-process for theater users outside the Continental United States (OCONUS) in a client/server mode of operation. It also facilitates electronic mail-based queries to CONUS data bases.

- Readiness Based Maintenance (RBM) is a decision support system that will help the Army establish repair, buy, and distribution priorities for Class IX materiel. The system's primary purpose is to maximize the probability of meeting weapons system availability objectives.

## Operating Concept

### *Principles*

Several principles serve as a foundation for the proposed maintenance operating concept, including the following:

- Visibility of assets "due-out" from maintenance will be provided for assets repaired at both organic and commercial facilities.

- Visibility of unserviceable, serviceable, and consumable assets will be provided to assist in identifying logistics pipeline bottlenecks.

- Pre-positioned asset data will be provided to intermediate- and depot-level maintenance facilities for incoming unserviceable assets.

- EDI techniques will be emphasized to ensure maximum compliance with commercial-sector practices.

- AIT will be used extensively to capture, store, and download information on in-process repair assets.

- DoD standard data (such as stock number, serial number, part number, lot number, drawing number, cage code, type designator code, or ownership purpose code) will be linked to all reparable units using AIT.

- Commercial maintenance facilities will be required to provide the same in-process information as organic facilities.

- All maintenance contracts with commercial firms will include requirements to provide information in support of DoD's TAV program.

- Commercial maintenance facilities will be required to provide TAV information using automated means.

*Operating Characteristics*

The ICP AIS would be the central repository for all in-process visibility information. All depot maintenance assets would be reported to IMMs, while intermediate maintenance assets would be reported through supporting retail supply activities. As shown in Figure 4-1, depot maintenance facilities and their supporting distribution depots would exchange asset and requirements data. Further, depot maintenance facilities would report (through DAAS) requisition data to ICP AIS. They also could report nonrequisition-related data directly to ICP AIS, particularly when the ICP is collocated with the maintenance depot.

DMS would not report all data elements to ICP AIS, but it would report the in-process data required for the materiel management functions that ICP AIS supports. In addition, DMS would provide detailed in-process repair visibility of all depot maintenance resources required for depot maintenance scheduling and for commodity, tool, facility, and equipment management.

The operating characteristics are further defined by the types of in-process repair asset information that would be captured and exchanged, including

- assets being repaired at depots and intermediate-level facilities in CONUS, including commercial facilities, and in theater at all levels;

- estimated completion dates of repair to include significant adjustments that result from process time variances;

- repair that is suspended because of a lack of available parts;

- current and planned availability of unserviceable assets;

- current and planned availability of organic and commercial depot-level and intermediate-level maintenance assets, government-furnished materiel, and government-furnished equipment required in support of repair actions;

- for depot-level unserviceable assets (by stock number, serial number, and part number, as appropriate)

  - for assets moving to depots for repair, the quantity and estimated dates of shipment and receipt

  - at time of receipt at a maintenance depot, the quantity, condition code, and date received from the field or supply depot

- at time of induction into repair, the quantity, date, priority of repair, and estimated completion dates for both IMM-directed and non-IMM-directed repairs
- if repair is suspended because of a lack of parts, the quantity and date placed in an awaiting parts status
- for suspended repair at time of reactivation, the quantity, date, priority, and estimated completion dates of materiel no longer awaiting parts
- at time of condemnation, the quantity and date assets are discarded
- when repair is completed, the quantity and date assets are ready for issue
- at time of issue either to a supply depot for stockage or to a customer for use, the quantity and date issued;

- due-outs from depot- and intermediate-level maintenance facilities; and
- pre-positioned data on incoming assets.

## Issues and Actions

Before DoD can have the desired visibility over assets being repaired, it needs to resolve several issues.

*Issue 1.* Depot maintenance organizations currently provide IMMs with information on their production of fully functional assets, but they also need to augment that information with condition code changes as assets move through the repair processes, including maintenance actions as documented under AMCLs 12 and 43.

*Action.* Modify relevant materiel management AISs at depot maintenance organizations to provide IMMs with condition code changes.

*Issue 2.* When completed, DMS will accumulate historical process information for forecasting estimated completion dates for all inducted reparables and computing sustainment planning factors. However, DoD Components also require the capability to compare actual and predicted progress, calculate new estimated completion dates when significant variances occur, and pass those dates to ICP AIS so it could adjust item availability data.

*Action.* Develop capability to automatically adjust estimated repair completion dates based on variances between estimated and actual dates, and provide the new estimated completion dates to ICP AIS.

*Issue 3.* Current linkages between commercial repair and ICP AIS are inadequate to exchange visibility information for DoD assets being repaired in commercial facilities.

*Action.* Propose and implement procedures for linking commercial repair and ICP AIS to support exchange of in-process information.

*Issue 4.* The JLSC has incorporated CAV functionality into MMS to provide visibility of assets at any contractor facility. Upon implementation of the Stock Control System (SCS) at an ICP, all government-owned assets in a repair facility will be visible to the ICP. However, the current policies and operating procedures linking DoD supply and maintenance managers cannot exploit information on the availability of in-process repair assets.

*Action.* Develop procedures for revising repair priorities and selectively rescheduling repairs on in-process assets to meet changing requirements.

## Procurement

For purposes of TAV, procurement assets are all assets that a vendor is delivering to satisfy a DoD contract (i.e., wholesale due-ins) and assets that DoD furnishes to vendors to produce other assets in support of DoD's requirements. Procurement assets do not include retail local purchases or assets that commercial activities are repairing — they are considered repair assets.

The in-process procurement process begins when a contract is awarded to a vendor for one or more items and ends when the ordered items are inspected and received by appropriate government representatives. TAV information for those contracts include delivery quantities and dates.

A key component of TAV is the expansion of existing capabilities to cross-reference duplicate items having different item identifiers. During its life cycle, an item can be identified with various reference identifiers (for example, NSN, manufacturer's part number, type designator, or system or drawing number). The development of a TAV query capability that considers how an item is identified during system design, development, and deployment, and provides effective cross-referencing of this information is essential to providing TAV. The correlation of this information will not only enhance the user's ability to identify the correct reference numbers that are applicable to a particular item, system, and weapons platform, but it will also provide savings by eliminating redundant Integrated Logistics Support (ILS) element procurement and supply support.

## Requirements

The TAV requirements for the in-process procurement process include the following:

- IMMs require visibility of procurement assets to assist in fulfilling customer orders through direct-vendor delivery; improve status reporting on backordered requisitions; and project delivery dates for purposes of forecasting depot receipt workload, planning for backorder release, and assessing future item support postures.

- DoD Component headquarters and major commands require visibility of procured assets to monitor the status of critical procurement actions and production of major end items.

- Joint Staff and CINCs require visibility of due-in assets to assist in assessing contingency operations and preparing special operations plans.

- Program managers for weapons systems require visibility of the manufacturing of major end items to monitor production and delivery schedules, plan for deliveries, and answer questions on production status and fielding from operational commanders.

- Retail item managers require visibility of wholesale assets due-in from procurement for materiel planning purposes.

- Intermediate- and depot-level maintenance facilities require visibility of wholesale assets due-in from procurement primarily for monitoring maintenance actions that are awaiting parts from wholesale supply. (Visibility of maintenance requisitions being satisfied through direct-vendor delivery would occur through the maintenance facility's supporting supply activity; under the proposed TAV operating concept, that visibility would occur in the requisition tracking segment.)

- IMMs require visibility of materiel stored by commercial firms under rotational contracts. Under those contracts, DoD pays a manufacturer or distributor to carry and rotate a quantity of limited-shelf-life assets that exceeds normal customer demand. This type of contract is used to avoid the costs involved in storing and disposing of materiel that might not be used before an expiration date. The materiel is owned by the manufacturer and shipped to DoD customers upon receipt of funded purchase orders.

## Current Capabilities and Ongoing Initiatives

DoD Components have several initiatives underway that provide some visibility over in-process procurement assets. Three of those initiatives are described below:

- Within SAMMS, DLA has a module for tracking the status of procurement assets — SAMMS Telecommunications. That module uses an item's NSN to check stock availability including the quantity and estimated delivery dates of due-in assets.

- DLA is developing an enhanced vendor delivery initiative that changes the procurement practices of its ICPs from primarily using "FOB (free-on-board) destination" terms in domestic vendor contracts to "FOB origin." The ICPs will use a third-party logistics manager to move FOB origin materiel from DLA vendors to the ultimate consignee. The logistics manager will provide ITV and control of that materiel in shipment and submit that information to GTN as part of the DoD TAV requirements.

- The Standard Procurement System, part of the procurement CIM initiative, will increase the visibility of assets due-in from procurement.

## Operating Concept

### *Principles*

Two principles underlie DoD's efforts to improve its visibility over the status of procurement assets. Those principles are discussed below.

- Visibility of procurement assets instills user confidence in the materiel management system by providing realistic information on the status of backordered requisitions.

- Visibility of procurement assets enables DoD's logisticians to enhance their support to operational and contingency plans, and weapons system readiness.

### *Operating Characteristics*

The proposed operating concept for providing visibility over the status of procurement assets embodies two key characteristics:

- All item quantities, delivery dates, and modifications would be accessible electronically. At the time of contract award, information from time and delivery clauses would be transmitted to ICP AIS.

- All contractor-reported excesses of government-furnished property would be reported to the responsible IMMs for disposition; and, if directed for return, would be considered due-in assets.

*Functional Roles*

IMMs, through ICP AIS, would maintain current data on due-in quantities and estimated delivery dates, and give DoD Components and major commands, joint planning staffs, CINCs, weapons system program managers, and retail item managers access to that information. In addition, intermediate- and depot-level maintenance facilities would access wholesale due-in information through their supporting retail supply activities. Procurement due-in information would be accessed through the Standard Procurement System.

## Issues and Actions

Before DoD can obtain visibility over procurement assets, it needs to resolve three issues.

*Issue 1.* Consistent with the principle of maintaining data in a single location whenever feasible, the linkage between the procurement AIS, which would be the primary source of due-in quantities and estimated delivery dates, and ICP AIS, which would use that information, does not exist.

*Action.* Identify alternatives for linking the procurement and ICP AIS. The planned linkages between migration logistics and procurement AISs may provide some insight.

*Issue 2.* Although vendors are required to comply with contract delivery schedules or negotiate modifications, some assets are still delivered late. DoD needs an AIS that identifies late deliveries, notifies contractors that recent deliveries were late, and provides for schedule modifications within provisions of the Federal Acquisition Regulation.

*Action.* Develop and implement a procurement AIS that monitors contractor performance against contract provisions, notifies contractors of late deliveries, provides for schedule modifications, and provides real-time information on the status of contractor performance to inventory managers.

*Issue 3.* Although the Enhanced Vendor Delivery Logistics Manager will maintain vendor shipment data on a system with EDI capability, DoD users do not have access to that data.

*Action.* Develop an interface between the Enhanced Vendor Delivery Logistics Manager's data system and LIPS.

# SUMMARY OF MATERIEL ISSUES AND ACTIONS

Although several issues and actions were provided within the in-storage and in-process sections of this chapter, others apply to both TAV segments. Those issues and actions are presented in this summary.

*Issue 1.* DoD's in-storage and in-process AISs lack standardization in data elements, transaction formats for electronic exchanges of information, file transfer protocols, and relational data bases having Structured Query Language (SQL) capabilities.

*Action.* Develop standard data elements, transaction formats, file transfer protocols, and data bases having SQL capabilities.

*Issue 2.* Several new and emerging AISs, including MMS, AMSS, and FAS, may not be fully capable of supporting the TAV operating concept.

*Action.* Ensure the functional requirements for MMS, AMSS, FAS, and other new logistics AISs support the TAV operating concept.

*Issue 3.* The Defense Information System Network (DISN) may not have the capacity to handle TAV data flowing among IMMs, retail activities, and users.

*Action.* Ensure that DISN has the capacity to handle the volume of TAV information flowing among IMMs, retail activities, and users. Ensure that communications data requirements are identified and submitted to the Defense Information Systems Agency (DISA) for analysis and resolution.

*Issue 4.* DAAS may not be capable of supporting the required information flows associated with the TAV operating concept.

*Action.* Design and develop enhancements to DAAS so it is capable of monitoring and processing TAV reports, queries, and responses.

*Issue 5.* DoD's retail inventory AISs are not capable of fully supporting the TAV operating concept.

*Action.* Assess the capability of retail inventory AISs to satisfy DoD's TAV requirements.

*Action.* Identify needed improvements to retail inventory AISs, estimate the resources necessary to make those improvements, identify the sources of those resources, and make the improvements.

*Issue 6.* TAV response times for different users and applications have not been specified.

*Action.* Develop TAV response times and modify associated AISs and telecommunications systems to satisfy those time requirements.

CHAPTER 5

# Transportation Business Area

## BACKGROUND

The third segment of TAV, in-transit, focuses on the movement of Defense assets from origin to destination. ITV is the ability to track the identity, status, and location of DoD unit and non-unit cargo (excluding bulk POL) and personnel; medical patients; and personal property from origin to destination during peace, contingencies, and war. At a minimum, DoD needs the capability to identify the contents of a shipment and monitor its location as it moves from origin to destination. DoD also needs the capability to track items, unit movements, and non-unit personnel movements; reconstitute shipments; and divert shipments to new destinations. Such a capability must include redeployments and retrograde shipments; be available during peace, contingencies, and war; and support both the operations and logistics communities.

DoD has long been aware of the value of ITV. Within the past few years, the DUSD(L) assigned USTRANSCOM responsibility for developing a DoD-wide ITV capability. As the DoD functional proponent, USTRANSCOM's ITV responsibility begins at origin and ends with receipt at the consignee or destination designated by the CINCs, Military Services, or Defense agencies. As an initial response to its new responsibility, USTRANSCOM developed a GTN prototype to provide (among other capabilities) ITV over air and surface shipments moving between POEs and PODs. USTRANSCOM is now expanding that module to encompass movements from CONUS origins, through the ports, and forward to theater destinations. Ultimately, GTN will become the integrated transportation module of the Global Command and Control System, which will replace the Worldwide Military Command and Control System and Joint Operational Planning and Execution System.

As noted in Chapter 2, GTN is key to the in-transit portion of DoD's TAV operating concept. It will include a comprehensive data base of in-transit shipment information, including all military-, government-, and vendor-documented shipments. That data base will consist of shipment status information, booking information, passenger reservations, aircraft and ship manifests, personal property data, medical patients information, and vessel and aircraft scheduling data.

The GTN system is discussed in more detail in the *Defense Intransit Visibility Integration Plan*, which provides extensive detail on implementing ITV. [1]

This chapter provides an overview of the requirements and a functional design for an integrated ITV capability that builds upon many of the features already present in GTN. Because unit and non-unit movements are currently supported by different business processes and information systems, they are treated separately.

# UNIT MOVEMENTS

## Introduction

This section presents an overview of DoD's requirements for ITV of all unit movements, broken out by cargo and personnel. For each movement category, it presents an operating concept for obtaining ITV over unit movements, describes selected ongoing initiatives that have the potential to contribute vital ITV data, discusses various issues related to implementing the ITV operating concept, and identifies target implementation dates. It also addresses DoD's ITV requirements for redeployment and retrograde unit cargo shipments and redeployment of unit personnel.

## Cargo

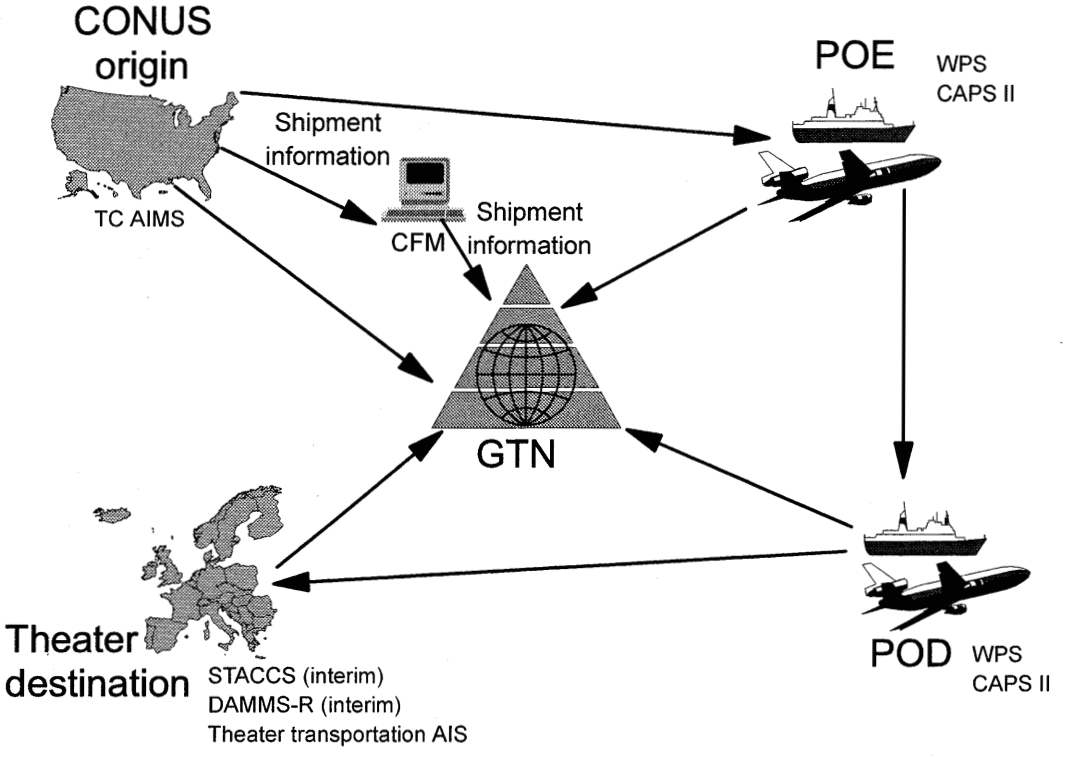
### DEPLOYMENT

Unit cargo includes all unit equipment and accompanying supplies; Marine Corps Maritime Pre-positioned Forces; Army unit equipment aboard pre-positioned afloat ships; and Pre-positioned Materiel Configured to Unit Sets stocks. In order to provide the status and location of all unit movements from origin to destination, DoD must be able to track commercial and organic shipments of unit cargo by the shipment identification number; transportation control number (TCN); unit line number (ULN); and unit identification code (UIC). (Either the ULN or UIC is embedded in the TCN.) For government and commercial bills of lading, GBLs and CBLs respectively, the TCN is provided in the shipment description. Widespread use of these codes and numbers would enable users to maintain ITV of unit equipment on a line-item basis.

The ITV operating concept for unit cargo movements calls for GTN to receive unit movement data from source systems, POE and POD systems, and a theater transportation AIS (see Figure 5-1). The source systems include the Military Services' Transportation Coordinator's Automated Information for

[1] USTRANSCOM, *Defense Intransit Visibility Integration Plan*, February 1995.

Movement Systems (TC AIMSs).[2] The port systems include the Terminal Management System (TERMS), which will soon be replaced by the Worldwide Port System (WPS), for surface movements, and the Consolidated Aerial Port System II (CAPS II) for air movements. The theater transportation AIS has not yet been developed, although JTCC has proposed that TC AIMS II be the foundation for such a system. In addition, the Standard Theater Army Command and Control System (STACCS), which tracks Army unit movements, and the Department of the Army Movement Management System — Redesign (DAMMS-R), which forecasts and tracks inter-theater cargo and containers, would complement TC AIMS II.




***Note:*** All arrows signify MILSTAMP data transactions unless otherwise annotated. CFM = CONUS Freight Management (system).

**Figure 5-1.**
***Unit Cargo — ITV Operating Concept***

When a unit cargo movement occurs, TC AIMS II would transmit shipment information to GTN and the appropriate POE system. If the unit cargo movement is documented using a GBL, the data would be transmitted from TC AIMS II to the CONUS Freight Management (CFM) system, which would

[2]The Joint Transportation CIM Center (JTCC) has recommended the integration of several transportation systems on a single platform as DoD's unit movement migration system. JTCC gave this migration system a generic title — TC AIMS II. It is intended to support unit movements, installation transportation office business processes, and load planners.

then update GTN. When the unit cargo reaches the POE, the port system would provide GTN with port arrival, lift aboard the vessel, and departure data. The POD would send similar updated information to GTN and the theater transportation AIS. Finally, GTN would receive destination arrival data from the theater transportation AIS.

Although DoD has made much progress in implementing portions of this concept, it needs to resolve two key issues before ITV is possible.

*Issue 1.* The theater transportation AIS is not developed.

*Action.* Define the operational requirements and standard data elements for the theater transportation AIS and then develop the system.

*Issue 2.* The interfaces between GTN and TC AIMS II, CFM system, STACCS, and theater transportation AIS do not exist.

*Action.* Ensure that GTN is capable of receiving information from TC AIMS II, CFM system, theater transportation AIS, and other key transportation systems.

## Redeployment and Retrograde

A theater commander's responsibility for the movement of unit cargo entering the theater does not end when it arrives at destination. Many items, including unit and non-unit supplies and equipment, are subsequently reshipped from the theater to sites in either CONUS or another theater. Theater commanders retain responsibility for the movement of all cargo from a theater point of origin through arrival at a theater POE. While DoD has a substantial investment in a CONUS infrastructure for deploying unit and non-unit cargo, it lacks a similar infrastructure at overseas locations for redeployment and retrograde cargo. The lessons from Desert Shield/Storm indicate the need for more effective systems support in overseas theaters. Numerous problems arose in the documentation and subsequent redeployment of unit and non-unit cargo from Europe to Saudi Arabia, and from Saudi Arabia back to Europe and CONUS, primarily because of the absence of systems in the European Theater to generate documentation and track cargo movements. Current doctrine requires flexible and rapid responses to and from any potential theater, which calls for the development of a single theater system that satisfies Joint Staff, Military Service, and Defense agency requirements, and provides capabilities similar to CONUS deployment systems.

The operating concept for redeployment and retrograde cargo is shown in Figure 5-2. As with the deployment process, standard transportation documentation and information necessary to support redeployment and retrograde shipments would originate with the theater transportation AIS. That system would also have the capability to transmit shipment information to GTN, the theater POE system, and in-theater organic and foreign commercial carriers. Upon

arrival of the redeployment or retrograde cargo at the theater POE, the port system would update the movement information and pass it to GTN.

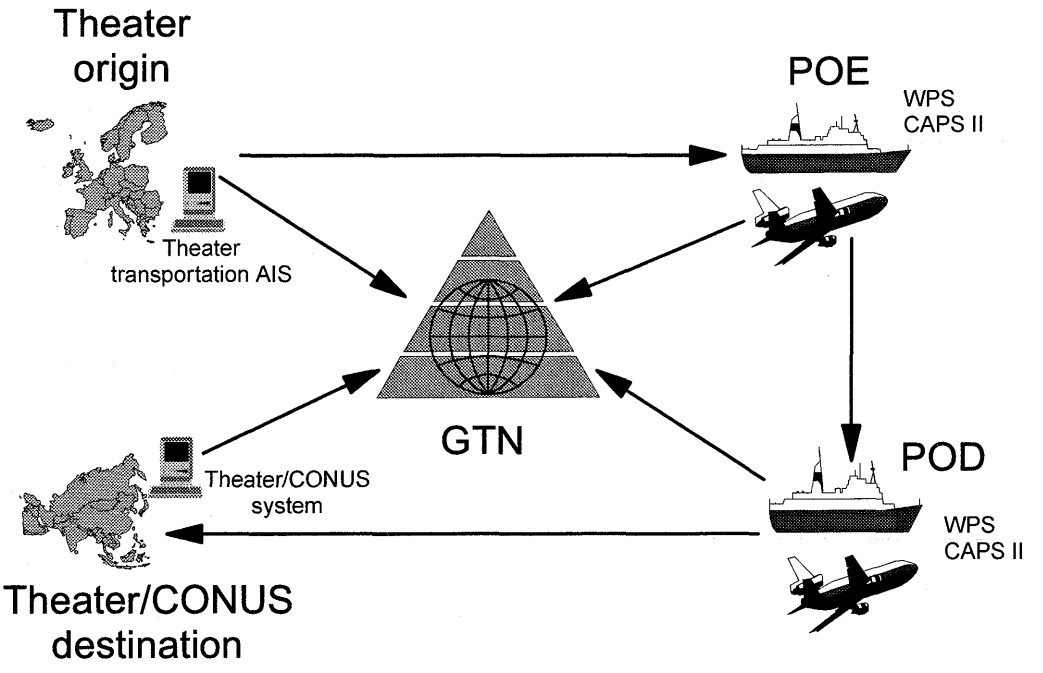



**Figure 5-2.**
***Redeployment and Retrograde Cargo — ITV Operating Concept***

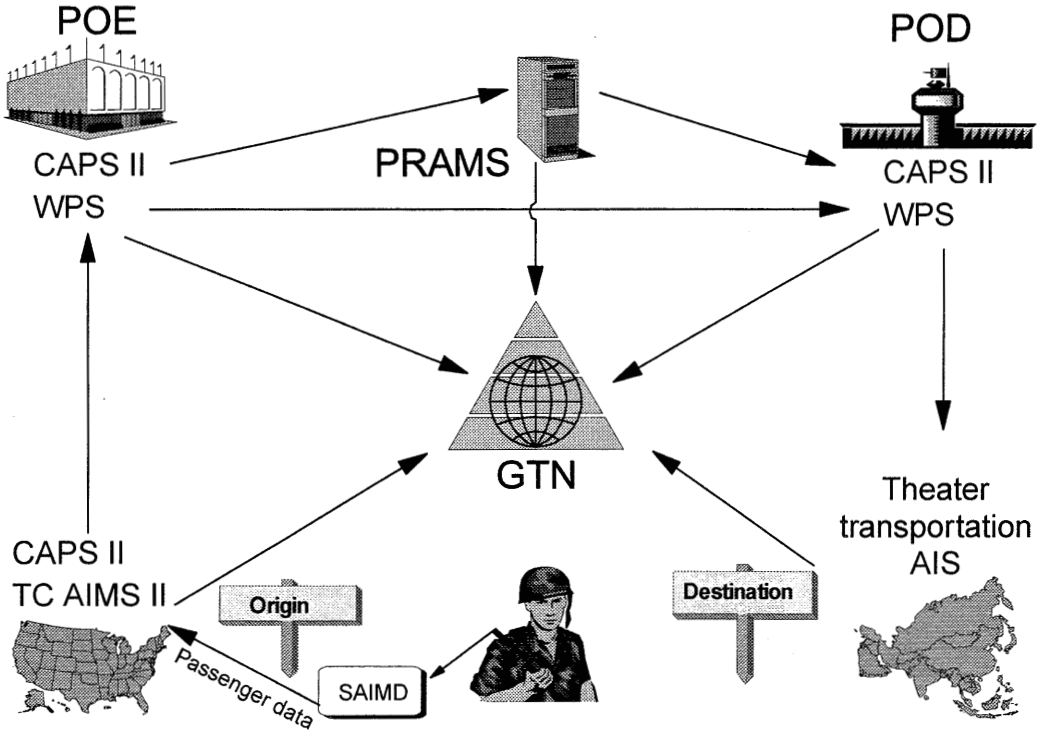
As noted previously, the keys to effective ITV over unit redeployment and retrograde shipments are the theater transportation AIS and several interfaces among current and planned systems. Until DoD develops the theater transportation AIS and links that AIS to other systems, its ITV will be severely restricted.

## Personnel

### Deployment

Unit personnel include all civilian and military passengers assigned to a deploying unit. Modern commercial communications and live media coverage of troop movements have placed additional emphasis on the commander's need for visibility of personnel moving from origin to a theater destination via air or surface transport. As a consequence, passenger details, such as name, social security number, service specialty code, ULN, ultimate destination, and in-transit location, must be readily accessible. A standard automated input media device (SAIMD) is needed to automate the capturing of passenger data.

To ensure the availability of this information, the ITV operating concept for unit personnel includes the electronic transmission of standard passenger manifests from CAPS II and TC AIMS II (see Figure 5-3). Those systems, which are located at installations and aerial ports throughout the world, would transmit data to GTN. For personnel movements manifested using TC AIMS II, the origin would provide the port system (WPS for surface movements and CAPS II for air movements) with advance manifest information. WPS or CAPS II would, in turn, update GTN with vessel or aircraft departure information from the POE. At the POD, either WPS or CAPS II would update GTN and the theater transportation AIS with vessel or aircraft arrival information. Finally, the theater transportation AIS would update GTN when the unit reaches its destination in-theater.




***Note:*** All unlabeled arrows indicate manifest data flow.

**Figure 5-3.**
***Unit Personnel — ITV Operating Concept***

DoD already has some visibility over unit personnel movements. Interfaces between GTN and CAPS II, and between the Air Mobility Command's (AMC's) Passenger Reservation and Manifesting System (PRAMS) and Global Decision Support System, enable GTN to track deploying unit personnel from POE to POD. Nonetheless, two issues are restricting that visibility.

*Issue 1.* DoD Components are not using standard data elements when preparing passenger manifesting formats; they also are not making extensive use of automation when inputting passenger information.

*Action.* Develop a standard data element passenger manifesting format and use Military Service systems to populate the manifest system through electronic communications or an automated input device.

*Issue* 2. Interfaces among several key passenger systems do not exist.

*Action.* Develop interfaces among TC AIMS II, WPS, and CAPS II.

### Redeployment

Entire units and individual non-unit personnel are periodically reallocated, reassigned, or relocated to other areas of operation within a theater, to another theater, or back to CONUS. Theater commanders and the personnel community (gaining and losing commands, and Military Service processing centers) are required to monitor and track these types of redeployments, just like initial personnel deployments. Like cargo, personnel redeployments have taken on added importance because of the smaller forces and the potential need to rapidly redeploy forces to new theaters of operations or return them to permanent bases for reconstitution. Therefore, the ITV operating concept for personnel redeployments is similar to that for personnel deployments. Visibility over the redeployment of unit personnel hinges upon development of the theater transportation AIS. As noted previously, that system is also key to other ITV capabilities.

# Non-Unit Movements

## Introduction

This section presents an overview of DoD's requirements for ITV of all non-unit movements, broken out by cargo and personnel. For each movement category, it proposes an operating concept for obtaining ITV over non-unit movements, describes ongoing initiatives that have the potential to contribute vital ITV data, discusses various issues related to implementing the proposed ITV operating concept, and identifies target implementation dates.

## Cargo

Non-unit cargo includes all sustainment materiel (except the supplies and equipment accompanying a unit during deployment) in CONUS, pre-positioned overseas, or afloat. Non-unit cargo is documented in accordance with the guidance in MILSTAMP and the *Defense Traffic Management Regulation* using transportation control and movement documents (TCMDs), GBLs, CBLs, and other nonstandard commercial formats and procedures.[3]

[3]Department of the Army, the Navy, the Air Force, and the Defense Logistics Agency, *Defense Traffic Management Regulation*, 31 July 1986.

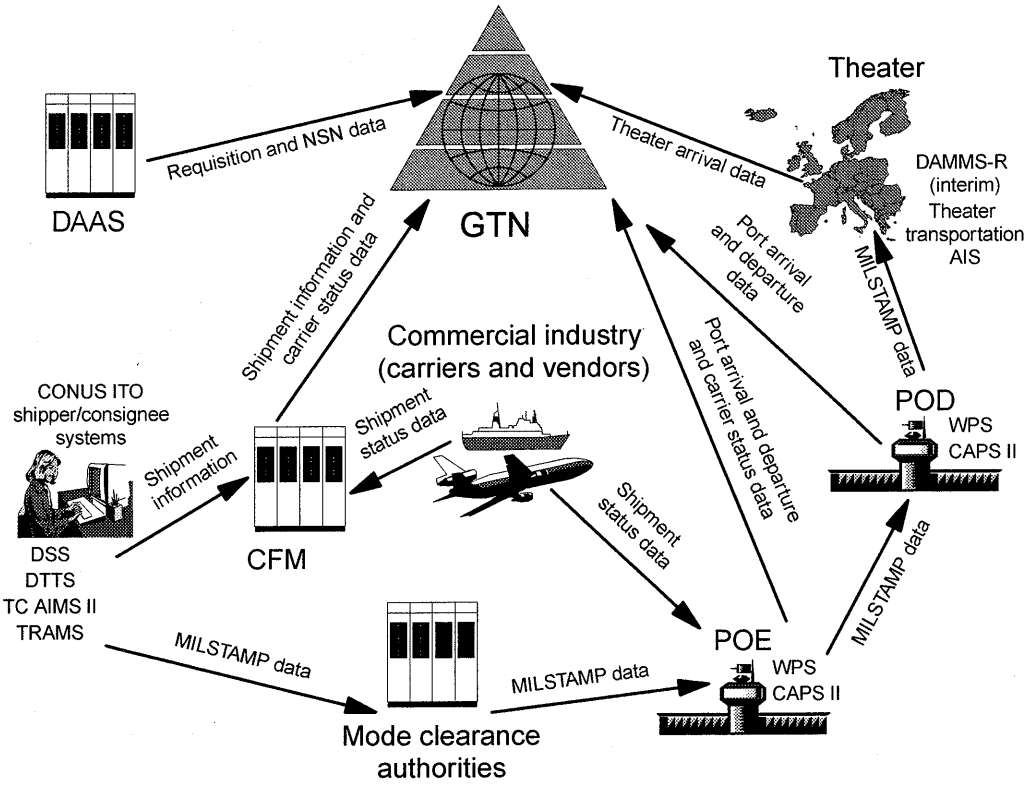
DoD's experience during Desert Shield/Storm indicates that the most benefits from implementing ITV are in the non-unit cargo area. However, those types of shipments also pose the greatest implementation challenges. For example, more than 1,000 CONUS installation transportation offices, supported by at least 11 different application systems, initiate millions of non-unit cargo shipments every year using all modes of transportation. In addition, up to 50 percent of DoD's non-unit shipments originate with commercial vendors and move exclusively through the commercial transportation system. Finally, all shipments, whether from DoD or commercial sources, are documented using a variety of formats.

Fortunately, DoD has long recognized these complexities and is implementing a number of programs to improve its business operations. The GTN Version 2 prototype currently captures non-unit cargo data from CAPS II and WPS. In January 1994, the Military Traffic Management Command (MTMC) implemented EDI techniques for receiving GBL data in the CFM system from a few Defense shippers. MTMC plans to interface CFM with GTN, along with expanding its GBL program to include more than 600 Defense transportation offices.

This approach, however, constitutes only part of a proposed non-unit cargo ITV operating concept. As Figure 5-4 shows, that concept calls for GTN to receive transportation information from source systems, POE and POD systems, and the theater transportation AIS; and requisition and NSN data from DAAS. The current source systems include the Military Service legacy depot systems; DLA's new Distribution Standard System (DSS) and Transportation Automated Management System (TRAMS); systems supporting installation transportation offices; and commercial vendor systems. TC AIMS II is the migration system that supports the traffic management for Defense installations. The port systems include WPS for surface movements and CAPS II for air movements.

For every non-unit cargo shipment, the CONUS source system would transmit shipment information (via mode clearance authorities for export shipments) to the next transportation node (i.e., aerial port, surface port, or consolidation point) or consignee. If the shipment is documented using a GBL or CBL, the data would be transmitted to the CFM system, which would then update GTN. The Defense Transportation Tracking System (DTTS) would forward location data on all ammunition shipments and shipments of sensitive items to GTN. The POE systems would provide GTN with three ITV messages for every shipment: expected shipment arrival information (enhanced MILSTAMP data); actual port arrival information; and actual port departure information. The POD systems would then provide port arrival, cargo discharge, and departure information to both GTN and the theater transportation AIS. Finally, GTN would receive destination arrival data from the theater transportation AIS.

Before DoD can achieve effective ITV over non-unit cargo movements, it needs to resolve four issues. However, two of those issues — the need to develop a theater transportation AIS and link GTN to other transportation systems — have already been highlighted.




***Note:*** DSS = Distribution Standard System; ITO = Installation Traffic Office.

**Figure 5-4.**
***Non-Unit Cargo — ITV Operating Concept***

*Issue 1.* Since commercial carriers move much of DoD's non-unit cargo, full ITV will not be possible until carriers can provide DoD with timely and comprehensive shipment status information.

*Action.* Ensure that commercial carriers can provide DoD with the shipment status information it needs for ITV.

*Issue 2.* Although DTTS provides effective ITV over some CONUS shipments, the capability of that system needs to be expanded to encompass more shipments.

*Action.* Expand DTTS to include other modes of transportation, additional sensitive commodities, and OCONUS shipments.

## Personnel

A large number of temporary duty and permanent change-of-station personnel, medical attendants, and filler and replacement personnel move daily through military and commercial transportation systems. DoD needs the

capability to track the identity, location, and movement of those personnel to ensure that field units and naval combatants can be rapidly brought up to strength during crisis operations and war. The tracking of these types of personnel presents a unique challenge to the transportation community because many of them travel individually on commercial carriers.

The ITV operating concept for non-unit personnel (see Figure 5-5) calls for PRAMS to update GTN on the status and location of all DoD passengers. That update already occurs every two hours. In addition, AMC is building an interface between PRAMS and commercial airline reservations systems that will ultimately provide GTN with information about selected categories of DoD personnel traveling on commercial airlines.

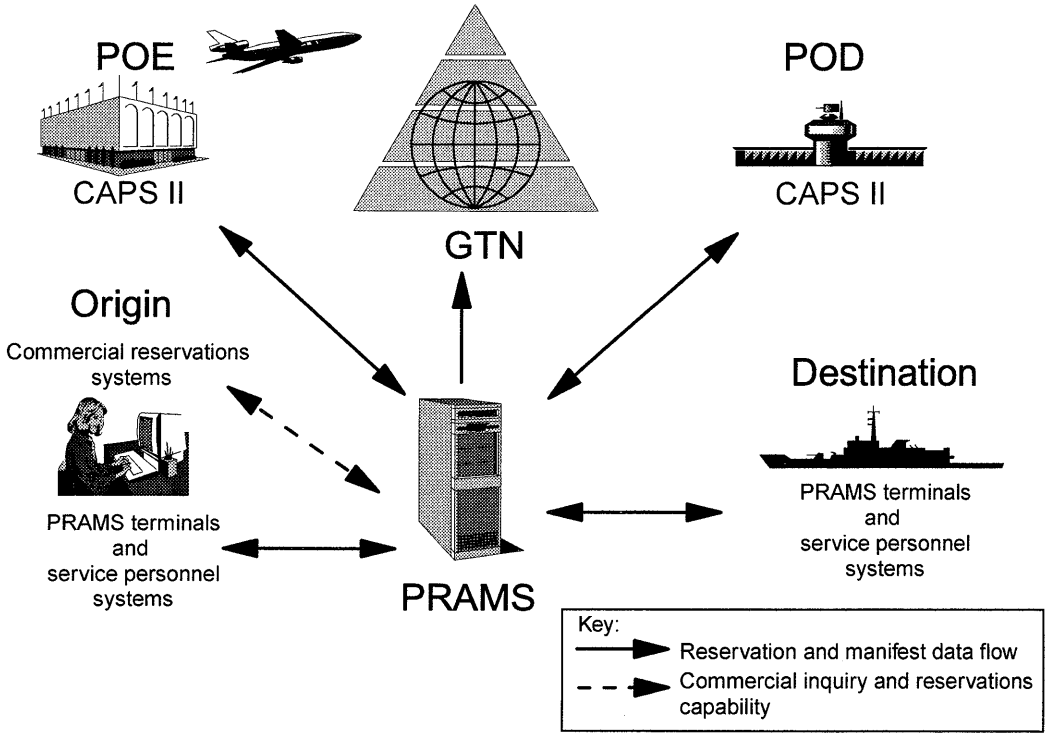



**Figure 5-5.**
***Non-Unit Personnel — ITV Operating Concept***

In contrast, the Military Services' wartime personnel processing and tracking systems do not interface with PRAMS, which results in personnel managers manually keying reservation requests into PRAMS terminals. Confirmation and manifest information are also manually keyed into various personnel and AMC systems, which further inhibits the exchange of information and smooth transition from peace to wartime operations. Until the Military Services develop the capability to interface with PRAMS, they will continue to obtain personnel movement information directly from GTN. DoD's long-term goal is for personnel managers to access PRAMS directly for reservations, confirmations, and information on personnel movements. The Army needs to work with AMC to

link PRAMS with its Replacement Operations Automation Management System (ROAMS).

DoD's visibility over non-unit personnel will be severely restricted until it resolves one key issue.

*Issue.* Military Service personnel and manifesting systems do not interface with PRAMS.

*Action.* Upgrade ROAMS and PRAMS so that they can exchange critical non-unit personnel information automatically. That electronic linkage could eventually serve as a standard for all DoD personnel systems. When the ROAMS and PRAMS interface is complete, the Navy and Air Force should determine the systems that they will use to interface with PRAMS to request passenger transportation and provide passenger ITV data to GTN.

## PATIENTS

A key subcomponent of DoD's personnel movements is the evacuation of medical patients from medical treatment facilities (MTF), whether in the theater or CONUS. To meet this requirement, USTRANSCOM is developing TRANSCOM's Regulating and Command and Control Evacuation System (TRAC2ES) as one of four GTN modules. This system will capture patient care and movement requirements from MTFs worldwide, select the destination MTF, and schedule patients for evacuation. It will contain all essential patient data, along with selected transportation data.

Patient tracking information will be maintained by the Global Patient Movement Requirements Center (GPMRC) and the Theater Patient Movement Requirements Center (TPMRC). The timeliness and quality of information that TRAC2ES receives can be improved through the use of automated cards, such as a multitechnology automated reader card (MARC), which is being evaluated for both medical and mobility applications. The operating concept for tracking medical patients is shown in Figure 5-6. Until USTRANSCOM fields an operational prototype of TRAC2ES, DoD will not have ITV over patient movements.

*Issue.* Development and fielding of TRAC2ES is critical to effective ITV over the movement of medical patients.

*Action.* Ensure the operational prototype of TRAC2ES is completed on schedule.

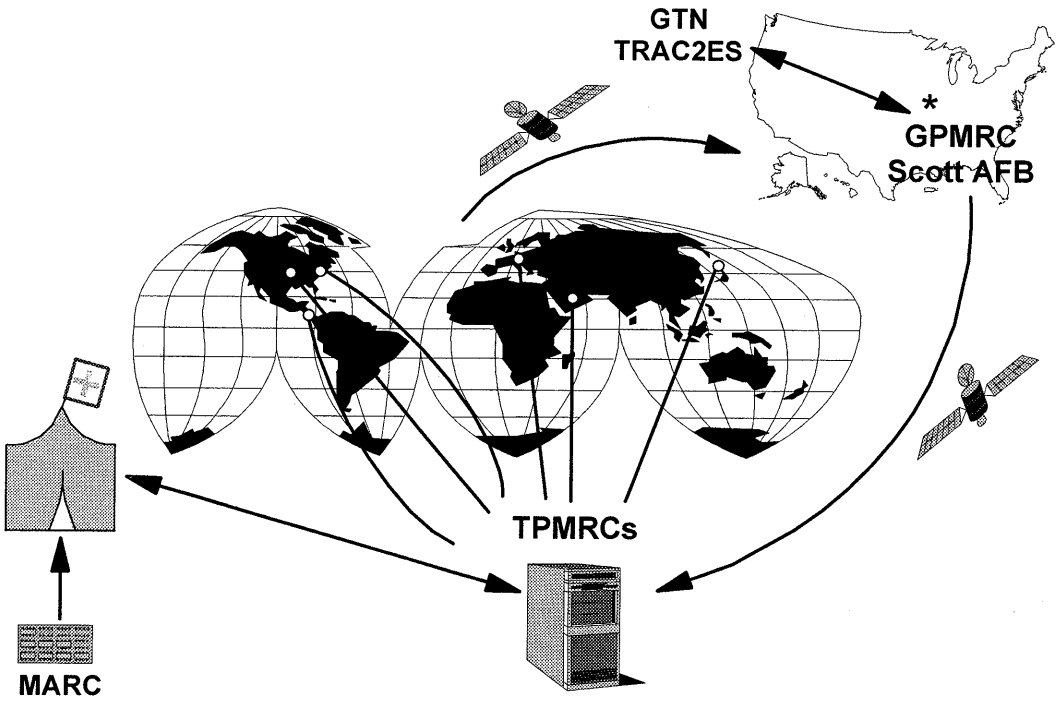



**Figure 5-6.**
*Medical Patients — ITV Operating Concept*

# PERSONAL PROPERTY

Personal property cargo includes household goods, unaccompanied baggage, privately owned vehicles, and mobile homes belonging to military members and civilian employees of the DoD and U.S. Coast Guard. While the personal nature of this cargo mandates close attention to service quality, an ITV capability would add little to DoD's ability to deploy and sustain its forces during war or contingencies. It must be recognized that ITV of personal property shipments provide valuable "quality of life" service to the dependents of the military members who need to relocate because of war or contingency situations. Although the personal property community's views vary, the existing visibility appears sufficient under most circumstances. Therefore, funding and development efforts for ITV are better directed at higher priority commodities, particularly those that contribute directly to force deployment and sustainment.

Nonetheless, DoD can still increase its visibility over selected personal property shipments relatively easily and inexpensively by requiring carriers to provide shipment status messages using EDI techniques. Those status messages should be provided at the request of a personal property shipping office when a shipment's transit begins and ends, and when the shipment has not been delivered by the required delivery date. Potential benefits include improved service, reduced claims, and reduced storage costs.

# SUMMARY

Many of DoD's logistics problems during Desert Shield/Storm will be minimized in future deployments if USTRANSCOM completes the development of GTN and integrates it into the TAV systems architecture. In addition to the actions called out in this chapter, the JTCC will need to ensure that all transportation migration systems and related process improvements can accommodate new TAV requirements for timely processing of transportation data, pre-positioning that data at key transportation nodes, and submitting it to GTN. JTCC will also need to establish, in conjunction with migration system program managers, business rules and time standards for capturing and pre-positioning transportation data in support of TAV objectives, to include integration of AIT into the migration systems.

If DoD accomplishes the actions described in this chapter, operations and logistics users will be able to track shipments at the requisition and item level from origin to destination. They will also be able to identify in-transit asset attrition, divert shipments, track unit deployments, make decisions about theater infrastructure and support, and prepare theater onward movement plans. As noted previously, the *Defense Intransit Visibility Integration Plan* provides more detail on the operating concepts proposed in this chapter to support DoD's ITV requirements. It also provides additional actions and identifies the organizations responsible for implementing them.

CHAPTER 6

# Joint Theater Logistics

## INTRODUCTION

Theater logistics management is often conducted in an environment with special challenges and circumstances, and where deficiencies in asset visibility can have serious consequences — cost inefficiencies in peacetime and loss of additional lives in wartime. It is also performed under austere conditions without the support of an extensive base infrastructure. The lack of assured, continuous, high-quality communications adds further complications.

High quality management and support are essential to coordinate the buildup of logistics to support a contingency. It is highly unlikely that U.S. forces will ever again have the time they were afforded to prepare for operations in Southwest Asia. It is much more likely that future contingencies will permit very limited time for the buildup before combatant operations begin. Though there are may facets to supporting a deployment, one of the more major hindrances to accomplishing this task is the absence of a deployable logistics AIS capable of supporting theater logistics management.

JTF commanders and theater CINCs, must have visibility of the assets already deployed in theater and of those which are enroute. Common, accurate, timely, and readily accessible information is needed by the JTF commander, the CINC, and all of the supporting activities.

The TAV requirements to support theater logistics management vary greatly depending on the perspective of each of the parties involved in theater operations. The requirements have been documented in a number of various studies and reports, which form the basis for the proposed JTAV.

This chapter presents the requirements for JTAV, describes the ongoing initiatives that will contribute to an operational JTAV, provides an overview of the system's operating concept, and concludes with various actions that need to occur before JTAV can become a reality. A prototype of JTAV is currently under development (see Chapter 8 for more details).

# REQUIREMENTS

CINCs and JTF commanders have demanding requirements for visibility over theater assets.[1] As documented in a number of studies and reports, those requirements include the ability to:

- support deliberate and crisis action planning;
- manage the deployment, reception, onward movement, integration, and employment of inbound forces and supplies and all intra-theater movements of assets;
- improve the management of in-theater assets to maximize their utilization;
- monitor the redeployment of forces and the retrograde of materiel;
- identify the status, quantity, and location of all pre-positioned assets;
- monitor the status and location of unit equipment and cargo, major end items, and sustainment materiel;
- identify and resolve logistics bottlenecks in satisfying theater requirements;
- allocate critical assets;
- monitor personnel destined for, operating in, or departing from the theater of operations;
- manage theater host nation support requirements;
- support operations in other than war; and
- support theater doctrine, budget, and procurement decisions.

Timely and accurate information on in-theater and inbound personnel, equipment, and materiel is required to assess the capability of the DoD logistics system to support operational and contingency plans and weapons systems readiness. JTF commanders need visibility of available theater transportation assets to assist in the effective movement of deploying forces and materiel, in balancing logistics support among competing requirements. Visibility of Military Service-owned assets in theater and assets inbound to theater is necessary to enable JTF commanders to assist with inter-Service redistributions to maximize readiness of all assigned forces.

JTF commanders and CINCs need TAV to divert forces and materiel to support other contingencies. In addition, the environment of reduced inventory and

[1] Deploying forces have many of the same visibility requirements as JTF commanders and CINCs.

decreased force structure does not allow for inefficient use of available stocks during contingency operations.

# ONGOING INITIATIVES

As noted previously, a prototype of JTAV is now being developed. In addition, JTAV must be capable of sharing data with three ongoing initiatives — Logistics Anchor Desk, Battlefield Distribution, and Theater Transportation System. These initiatives are summarized below.

## Logistics Anchor Desk

The Logistics Anchor Desk is an initiative of the Army Materiel Command and involves USTRANSCOM, DLA, and Advanced Research Projects Agency. When completed, it will provide an integrated system of communications, asset visibility, and decision support tools. It will make extensive use of logistics workstations to integrate analytical tools with connectivity to associated systems, including GTN, ATAV, and Defense Mapping Agency data bases. The decision support capability will address both intra- and inter-theater cross-leveling of assets as well as planning for and executing strategic transportation services.

## Battlefield Distribution

An initiative of the Army Combined Arms Support Command, Battlefield Distribution focuses on controlling the flow of materiel from theater PODs to the ultimate users. It will embody a central theater receiving and shipping capability along with "hub-and-spoke" and direct-delivery distribution systems. It will make extensive use of AIT for capturing source data and linking supply and transportation AISs to provide the required visibility and control of materiel.

## Theater Transportation System

DoD has long recognized the need for a transportation AIS to support theater units and installation transportation activities, both in wartime and peacetime. The *Defense Intransit Visibility Integration Plan* recognized the value of this system for ITV applications. TC AIMS II, an approved migration system, is intended to address this need.

# OPERATING CONCEPT

## Principles

JTAV must embody several principles in its design and operation. It must

- be fully deployable and capable of supporting the CINC's requirements and those of all operating and supporting forces in theater;
- operate the same in both peace and war;
- be simple and easy to use;
- use existing data elements and data bases;
- promote data element standardization;
- be compatible with existing Military Service applications;
- be compliant with the Global Command and Control System (GCCS) Common Operating Environment (COE) and be consistent with the GCCS Integration Standard;
- be timely and accurate;
- reduce cost and improve efficiency;
- support garrison, deployed, and nondeploying functions; and
- place no additional burden on operating forces.

## Concept of Operations

The TAV capability provided through JTAV to JTF commanders is based on the premise that all necessary information already exists in current logistics data bases. Knowing the location of the information and making it accessible to the JTF staff and others in a user friendly manner are at the heart of the JTAV concept. An overview of the concept of operations for JTAV is shown in Figure 6-1. The concept is described in detail below.

- JTAV will use a client-server architecture that consists of a server/data base manager, a network manager, a communications manager, and a number of clients to include the JTF staff, operating forces, and supporting forces. The Joint DTAV Office will develop and field JTAV in conjunction with the theater CINCs. It will be fielded to each of the warfighting CINCs at the appropriate Military Service level to support activities equivalent to an

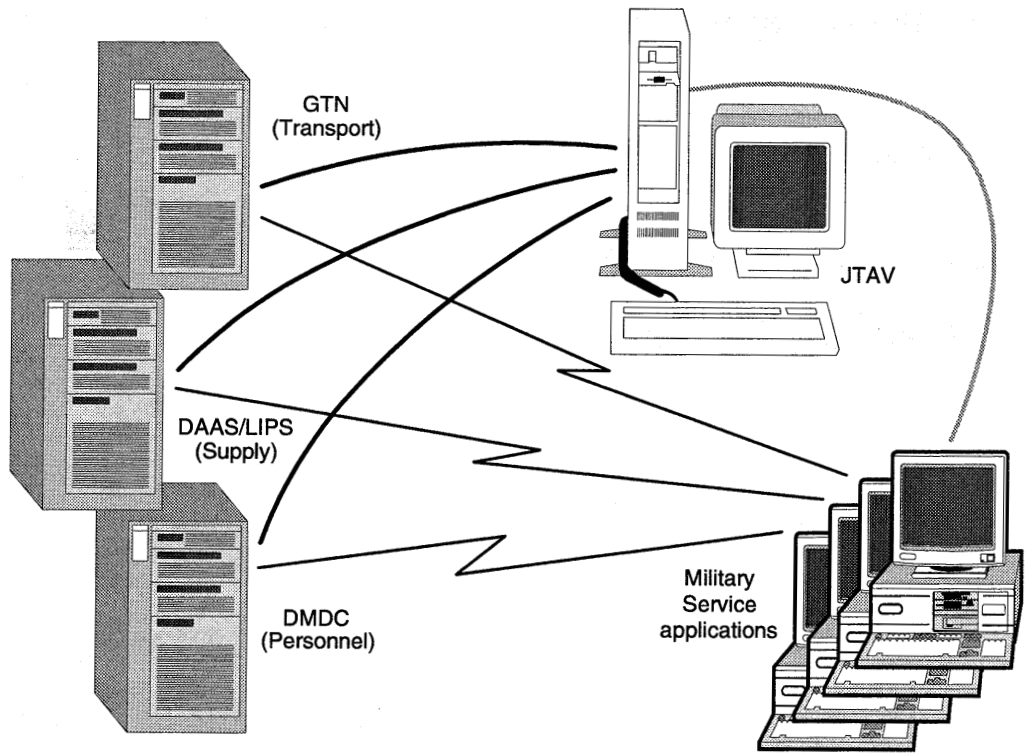



**Figure 6-1.**
*JTAV Operating Concept*

Army Corps, Marine Expeditionary Force, Navy Fleet headquarters, and Air Force numbered air force. JTAV will be maintained as fully functional capability routinely used in peacetime to provide a seamless transition to war. Deployable sets of JTAV hardware will also be held in reserve to support contingency operations.

- Deployed units and supporting organizations, such as theater distribution management activities, will be able to access JTAV to pass information and queries to the CONUS supporting establishment. The JTAV data base will be populated and updated by sharing data as an integral, though transparent, part of normal business.

- Existing Military Service applications will continue unchanged to support normal logistics functions. Military Service application data bases will be linked to the JTAV repository without levying additional tasks or reporting requirements. Information from the data bases associated with the Military Service applications will be shared with JTF commanders through JTAV to enhance the visibility of theater materiel and the interoperability of the forces that comprise the JTF.

- All translation of data will be done centrally to minimize the impact on the operating and supporting forces. The central repository will also link the deployed task force with the supporting establishment in both the CONUS and OCONUS to provide visibility of inbound shipments.

- Communications has long been identified as a critical shortfall in logistics operations, whether deployed or in garrison. A variety of communications media must be available to support existing Military Service capabilities and link the theater with the supporting establishment. Integral to the JTAV architecture will be high-quality communications connectivity to the CONUS supporting establishment.

- JTAV communications will include multiple means to provide redundancy and flexibility for connectivity. JTAV must be able to provide connectivity with the Military Service applications through whatever means the Military Services can support. Deploying organizations will access the network at their discretion and use the JTAV as a store-and-forward hub of asset information.

- The JTAV data base will be kept accurate and timely through electronic updates as requisitions, queries, and other transactions are forwarded. Military Service applications may use the JTAV communications capability to store and forward. However, they are not required to go through JTAV for normal data transactions.

Information outputs or data base retrievals and queries will be developed to meet the needs of the many users of asset information. The use of graphical user interface techniques will minimize the training required by making operations intuitive. Outputs and terminal screens will incorporate on-line help and pop-up descriptive information to assist users and ensure a common understanding of terminology between Military Services and Defense agencies.

JTAV will function as a central repository for JTF asset data because of its ability to translate Military Service application information to a common data base. Visibility of theater capabilities and requirements will be enhanced through population of this central repository.

Upon notification to deploy, units will interact with GTN for movement actions. Doctrinally, deployment information is validated 3 days before air movements and 10 days before sea movements. That information is then passed to JTAV, where it will serve as a baseline. Increasing levels of accuracy will be provided as subsequent steps are taken during installation outloading, embarkation, debarkation in theater, and as units are reorganized and made ready to fight.

Updates to JTAV made during these actions will require transmission of considerably smaller data files to change the baseline data base. These updates may be accomplished by electronically sending a copy of transactions or queries to JTAV when submitted to the supporting establishment. DAAS will ensure

that JTAV has been updated and transfer any information that is missing. As requisitions and associated status transactions flow through the DAAS/LIPS environment, information will be extracted and passed to JTAV by means of the address codes of the units. As transportation information flows through GTN, it will be extracted and passed to JTAV. This information can be utilized by the planned theater transportation system and the Battlefield Distribution System for POD planning and onward distribution. It can be fed to and used by planning and force capability tools to assess force capabilities. The information will also enable CINCs, JTF commanders, and units to track theater-destined materiel, unit equipment, and personnel.

Tools will be developed to provide aggregate reporting capabilities along with detailed information for the various levels of users of the JTAV data. These tools will be based on existing capabilities of the CINCs and on their requirements. Reports and queries will provide the capabilities needed for each level based on the detailed data within the JTAV data base, but aggregated and displayed as appropriate and desired by the CINCs, JTF commanders, and unit-level staffs.

Data elements that have been identified through surveys (such as those identified by the XVIII Airborne Corps) will be initially used in the JTAV data base development. These elements include data elements in the LIPS and ICP AIS data bases, ITV data from GTN, and personnel information from the Defense Manpower Data Center (DMDC). Requirements will be refined through JTAV user conferences.

Initially, data will be fed to JTAV from a CONUS-based system, such as GTN and DAAS/LIPS. As communications evolve and become more robust, and as interfaces between national data bases become more established, queries will be composed on JTAV and passed back to CONUS gateways for query resolution. This concept minimizes the amount of data required to flow between CONUS and the theater of operations, and also minimizes redundant data maintained in a fully populated theater data base system. The concept also minimizes the number of interfaces required to be maintained by JTAV.

## ARCHITECTURE

The JTAV architecture is based on client-server methodology that can be fully and quickly deployed with the same "look and feel' in both war and peace. Its main elements are described below:

- The server will reside on an open system platform using a TAFIM-compliant operating system. It will provide intelligent middleware allowing connection to disparate data bases, SQL query processing, relational data base management system services, and communications services. The communications services will support input and output devices for the operating and supporting units, JTF staff, and other in-theater agencies.

- The client portion will reside on workstations providing a TAFIM-compliant graphical user interface (GUI). It will provide a capability for preformatted and ad hoc SQL queries from in-theater users.

- Additional hardware included in the JTAV architecture includes a network manager and a communications router. The components of the JTAV are connected by standard Ethernet 802.3 using Transmission Control Protocal/Internet Protocol TCP/IP protocols. The JTAV configuration is shown in Figure 6-2.

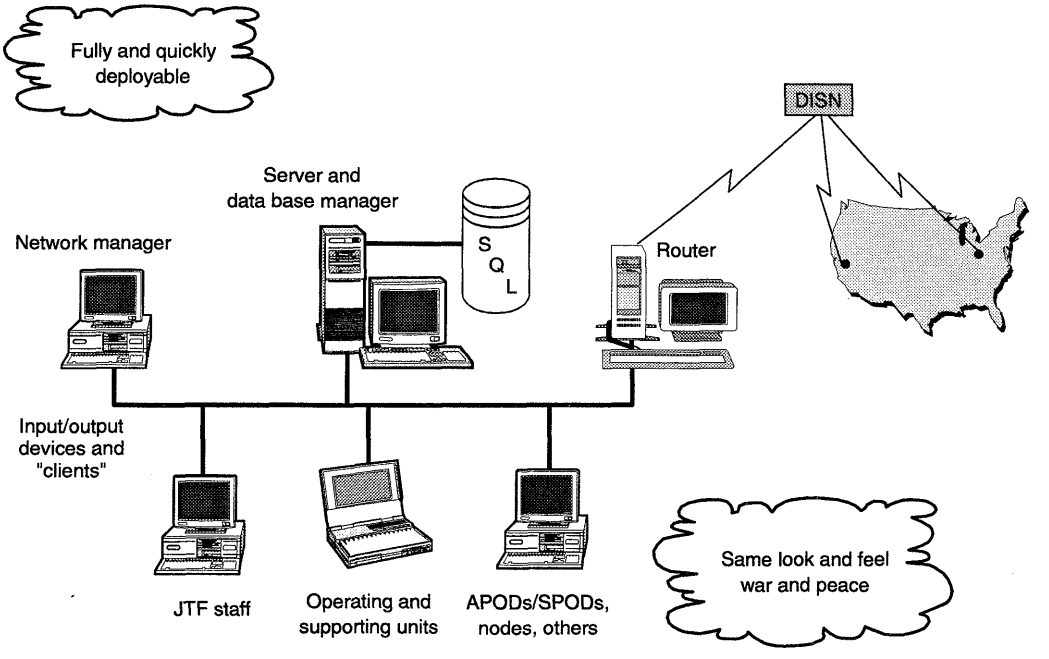



**Figure 6-2.**
***JTAV Configuration***

The JTF will be able to access in-transit, in-storage, and in-process information from CONUS central repositories through links to DAAS/LIPS and GTN. The JTF data base will merge this information with the information provided by the assigned JTF units from their logistics data bases. War reserve information will be routinely available to the CINCs from data repositories to be identified and provided to the JTF commanders when destined for the theater of operations.

Connectivity of client devices, as shown in Figure 6-2, will be supported by a wide variety of communications methods. Members of the Joint Staff, weapons system and item managers, as well as other managers in the CONUS, will be able to query the JTF data base using existing networks and communications links.

Development of a JTAV capability capitalizes on the recent technological advancements in communications; local- and wide-area networking; and high-speed, computing equipment and large, deployable data bases to support the networking of Military Service and Defense agency applications, CONUS data bases, and the theater repositories.

JTAV is being developed as a rapid prototyping system. Its operational concepts will continue to evolve throughout the developmental process in response to the review and advice of the theater CINCs, Military Services, Joint Staff, and other users. It will be fielded following a series of operational tests in support of theater CINC exercises.

Actions to map and merge Military Service applications to the central JTAV data base and to develop preformatted and ad hoc query capability will begin incrementally with applications from the Army and Marine Corps to provide ground force visibility. The Standard Army Retail Supply System — Objective (SARSS-O) and the Marine Air-Ground Task Force (MAGTF) II Logistics AIS family of systems will be the systems initially selected as source data bases for mapping and merging. They will provide automated links to the primary operating system for the Army's XVIII Airborne Corps and for all Marine Corps operating forces, plus maritime and afloat pre-positioned force materiel. Other applications for other Military Services, Defense agencies, and organizations must continue at a pace dictated by resources and prioritization. Efforts to develop DoD standard systems will impact on this effort and must play a significant part in the decision process.

The Joint Warrior Interoperability Demonstration (JWID) provides an excellent opportunity to demonstrate the capability developed to provide improved asset visibility of in-theater assets. Its intent is to demonstrate automated interface with personnel, supply, transportation, ammunition, medical, and wholesale item manager systems to provide the deployed force commanders an integrated view of the logistics situation. JTAV will provide automated decision support information for the deployed logisticians and to those in support of contingency forces via connectivity to the CONUS supporting establishment.

## Issues and Actions

DoD will gain valuable experience through the prototyping and demonstration efforts for JTAV. The issues underlying JTAV's development efforts and the associated actions are presented below.

*Issue 1.* JTAV will continue to evolve as theater CINCs, JTF commanders, Joint Staff, and others review and refine their in-theater requirements.

*Action.* Coordinate functional requirements for evolutionary enhancements of JTAV.

*Action.* Define JTAV's communications requirements, including those of deployable units.

*Action.* Interface JTAV with selected Military Service application systems.

*Action.* Demonstrate rapid prototype JTAV capabilities in support of the JWID.

*Action.* Develop an implementation plan for fielding JTAV capability to theater CINCs.

*Issue 2.* Manpower requirements have not been determined for the operation of JTAV.

*Action.* Capture information on manpower requirements during demonstration period.

*Issue 3.* Potential capabilities of JTAV have not been totally defined.

*Action.* Develop metrics for assessing the potential capabilities of JTAV.

*Issue 4.* Business rules may not be in place to manage and control JTAV capabilities.

*Action.* Review all DoD business rules that apply to JTAV and resolve any issues.

*Issue 5.* The JTAV prototype must be addressed as an acquisition program.

*Action.* Transition the JTAV prototype to a full-scale acquisition program.

CHAPTER 7

# Automatic Identification Technology

## INTRODUCTION

Automatic identification technology, or AIT, is one of the keys to obtaining accurate and timely information on the status of assets, whether in-storage, in-process, or in-transit. However, it is not a solution for achieving asset visibility. AIT is a suite of tools for facilitating data capture, aggregation, and transfer, and, as a consequence, it must be integrated with logistics AISs. The strength of AIT is its ability to rapidly capture detailed information and interface with AISs with minimal human intervention.

AIT includes a variety of read and write data storage technologies that are used to process asset identification information. These technologies include bar codes, magnetic stripes, integrated circuit or "smart" cards, optical memory cards, radio frequency (RF) identification tags, and magnetic storage media. They are used for marking or "tagging" individual items, multipacks, equipment, air pallets, or containers.[1] AIT also encompasses the hardware and software required to create the devices, read the information on them, and integrate that information with other logistics information. AIT offers a wide range of data storage capacities, from a few characters to thousands of bytes. The information on each AIT device can range, for example, from a single part number to a self-contained data base. AIT devices can be interrogated using either contact, laser, or RF devices, with the information obtained from those interrogations fed electronically into AISs for updating status records. In all applications of AIT devices, the ability to provide secure operations must be a fielding consideration.

Table 7-1 shows some of the features of selected AIT devices, while Table 7-2 summarizes the strengths and weaknesses of those same devices. The information in these tables further suggests a hierarchy of AIT capability, ranging from linear bar codes (low capacity, inexpensive, and easy to use) to active RF tags (medium capacity, relatively expensive, and reusable). As noted later in this chapter, the Joint DTAV Office proposes DoD build upon this AIT hierarchy to enhance its logistics processes.

[1]Throughout this plan, the term "multipacks" refers to a consolidation of several items stored or moving in various configurations such as tri-wall containers or shrink-wrapped or banded warehouse skids.

**Table 7-1.**
*Selected AITs*

| Technology | Data capacity | Encoding | Access | Range |
|---|---|---|---|---|
| Bar code | | | | |
| Linear | 25 characters | printer | handheld | close |
| Two-dimensional | 1,850 characters | printer | handheld | close |
| Card | | | | |
| Laser | 2.8 MB | laser | fixed | contact |
| Smart | 8 KB | electrical | handheld | contact |
| Memory | 20 MB | electrical | handheld | contact |
| RF tag | | | | |
| Passive | 16 bytes | RF | fixed/handheld | 20' line of sight |
| Active | unlimited | RF | fixed/handheld | 300' omni |
| Active | unlimited | RF | fixed/mobile | global through use of LEO satellite |

***Note:*** LEO = low earth orbital.

**Table 7-2.**
*Strengths and Weaknesses of Selected AITs*

| Technology | Strengths | Weaknesses |
|---|---|---|
| Linear bar code | Inexpensive, low error rate, disposable, industry standard | Low capacity, no updates |
| Two-dimensional bar code | Inexpensive, high capacity | No updates |
| Laser card | All environments, ultra-high capacity, inexpensive | No DoD standard, requires human contact, expensive readers, not portable |
| Smart card | Secure, moderate cost, high capacity | Requires human contact, slow transfer rate |
| Memory card | Reusable, ultra-high capacity, quick update capability | Requires human contact, expensive |
| RF tag — passive | Reuseable, extensive data transfer capability | No DoD standard, line of sight |
| RF tag — active | Reuseable, read/write capability, location finding, transaction capture processing, large capacity | Expensive, no DoD standard, slow data transfer, frequency dependent |

This chapter discusses DoD's requirements for AIT, describes ongoing AIT initiatives, presents a general operating concept for using AIT in all segments of TAV, and identifies actions for the near future.

# REQUIREMENTS

AIT devices are essential to automating the capture of information concerning assets in-storage, in-process, and in-transit. As described below, the scope of those three segments of TAV illustrates the complexity of the management challenges associated with using AIT to improve DoD's logistics processes.

- The in-storage segment involves approximately 6.75 million individual line items, with a total value of more than $150 billion, stored at over 1,000 locations worldwide, and supporting nearly 2.2 billion transactions each year.

- The in-process segment employs 117,000 personnel in depot-level maintenance facilities. Those facilities have annual operating budgets that total $12 billion to repair assets valued at approximately $135 billion.[2]

- The in-transit segment entails more than 7 million shipments annually, including 100,000 international seavan container shipments, with 41,000 containers stuffed at vendor facilities and shipped directly to DoD customers. Except for unit cargo and ammunition, all containers are booked with commercial ocean carriers and move almost exclusively through commercial ports. The military airlift system moves more than 170,000 tons of cargo annually through aerial ports. DoD also uses commercial airlift to move a significant amount of cargo.

Given the magnitude and diversity of these segments, DoD has three overarching requirements for AIT devices. They must be integrated into the AISs supporting its logistics functions; they must be employed to maximize use of pre-positioned data in these AISs; and they must be compatible across those functions. Furthermore, they must support the following requirements.

- For materiel received at a storage site, maintenance facility, shipping activity, port, destination receiving activity, or consignee, AIT devices should be capable of transferring item identification data (such as NSN, part number, quantity, lot number, and serial number) and transaction controlling data (such as document numbers) to the supporting AIS. The data transfer process should facilitate the receipt, disposition, and documentation processes.

- If pre-positioned data are not available at time of receipt, AIT devices should be capable of transferring stored information to the AIS supporting a

[2]The use of AIT devices in DoD's in-process activities refers only to maintenance. Except for requiring vendors to comply with DoD's item identification requirements, this plan does not address how AIT should otherwise be employed in support of procurement actions.

particular logistics process. The AIS can then use this information to create a record for the item, completing the required transaction.

- AIT devices should be an integral part of DoD's logistics processes. They should be used to convey item or transaction identification information, access and update specific records via AIS interfaces, and permit logistics personnel to enter only new or updated information. Examples of specific functions and processes that AIT can enhance include the following:

  - *Storage sites* are responsible for facilitating the receipt of materiel from vendors, reconciling purchase orders or contract commitments, stocking materiel in bins or on shelves, conducting physical inventories, and issuing materiel from storage. That support should entail facilitating the upload of information to AISs and confirming the accuracy of specific item data with information already resident in the AISs.

  - *Maintenance facilities* are responsible for tracking materiel through work-in-progress by capturing identification data, time, and location of materiel in and out of every step in the repair process. The AIT devices should be capable of capturing information on materiel consumed in the repair process and carrying comprehensive maintenance history data for subsequent access by related logistics processes.

  - *Shipping and receiving activities and ports* are responsible for confirming receipt of materiel, preparing shipment documentation, consolidating items into larger shipping units, breaking shipment units down into individual items, and updating shipment status information.

  - *Logistics management* is responsible for assisting in locating and identifying materiel, shipments, and containers.

- AIT devices should be capable of supporting the transfer of items among maintenance facilities, storage sites, and shipping activities.

- AIT devices, in concert with associated AISs, should be capable of supporting the reconstitution of DoD shipments.

- All data stored on AIT devices should be formatted in accordance with military standards, with eventual migration to ANSI EDI standards in conjunction with implementation of DLMS 2.0. AIT devices should be used during peacetime in the same manner they would be used during contingencies.

- AIT is an alternate source of movement data, so assured communications is essential to any AIT strategy.

# ONGOING INITIATIVES

Several DoD Components have experience with a variety of AIT devices. Some of the associated initiatives are briefly described below:

- As part of DLMS 2.0, DoD is replacing the 80-column card formats prescribed in the MILS transactions with variable-length EDI standards. Use of those standards will facilitate the integration of AIT and logistics AISs.

- San Antonio Air Logistics Center is striving to develop a bar-code label capable of withstanding caustic cleaning as part of an effort to automate data collection and scheduling of items requiring plating.

- San Antonio Air Logistics Center is also using RF interrogators and tags to identify and track high-value, serially controlled, foreign military sales assets through its engine repair shops. It is also planning to use similar procedures to track parts, compile repair statistics, maintain repair histories, forecast schedules, and monitor work in progress.

- In support of the Air Force's two-level maintenance program, Oklahoma City Air Logistics Center is using bar codes to track the flow of items through the repair cycle.

- The Army is putting detailed content data on omnidirectional active RF tags with 8K and 128K data capacities. It has used those tags in two recent contingencies (Somalia and Haiti) and several exercises. The Army has also applied RF tags to containers on two afloat pre-positioned container ships. Further, the Army is planning to place RF AIT devices on approximately 12,000 containers of the Containerized Ammunition Distribution System.

- The Marine Corps is using omnidirectional active RF tags containing minimal identification and control data in a variety of situations, including deployments and pre-positioned operations. In those applications, local AISs are providing detailed content data.

- DLA's Automated Manifest System (AMS) employs optical memory cards to carry supply content detail for multipacks, air pallets, vans, and container shipments to major customers. Its primary objective is to facilitate automated receipt processing.

- Military shipment labels (MSLs) include three data elements — TCN, consignee DoD activity address code, and piece number — that are encoded using linear bar codes.

- The issue receipt and release document (DD Form 1348-1A) contains seven data elements that are encoded with linear bar codes. Those elements are used to support receipt, issue, and storage transactions. Data from DD Form 1348-1A are also used to support the transfer of items to installation traffic offices (ITOs) for shipment planning and processing.

# OPERATING CONCEPT

## Overview

In assessing the above requirements and DoD's AIT experiences, the Joint DTAV Office concludes that no single AIT device could support all potential applications. Until this situation changes, the Joint DTAV Office believes that a family of devices — with some redundancy across AITs — will be required to support DoD's numerous applications of AIT. This family of AIT devices consists of the following:

- *Linear bar codes (Code 39)* provide item identification and document control information for individual items and shipments.

- *Two-dimensional (2-D)* symbology bar codes provide comprehensive data on documents, individual items, or shipments; and consolidation data on multipacks and air pallets.[3]

- *Optical memory cards* document supply-content data for materiel in multipacks, air pallets, containers, tractors, trailers, and rail cars; used where extensive data are required.

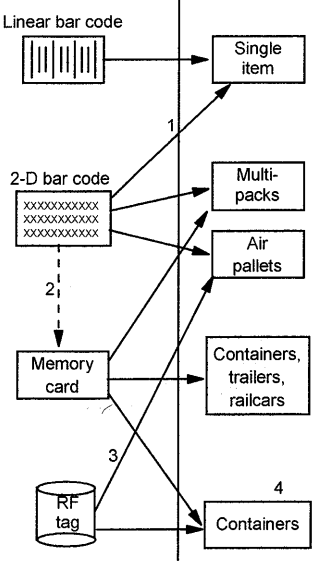
- *RF tags* support containerized ammunition, container consolidation point (CCP)-stuffed and depot-stuffed seavan containers, air line of communication (ALOC) pallets, port and in-theater operations, unit cargo moving in containers, and receipt and distribution of petroleum products. Military Services may also use RF tags on unit equipment or other major end items.

Figure 7-1 shows a general operating concept of how DoD could use these four AIT devices to improve its visibility over materiel assets, whether in-storage, in-process, or in-transit. This operating concept is based upon several principles. First, logistics data must be pre-positioned to enhance operational planning at every node in the logistics process and minimize the need to populate local files at time of receipt. Second, AIT devices must be fully integrated with logistics AISs to maximize flexibility and utility. Third, specific logistics processes (such as an intermediate maintenance facility or distribution activity) may need unique AIT applications to accommodate local requirements, facilities, and operations. Fourth, AIT must be used to identify assets in-storage, in-process, and in-transit, as well as supporting documentation and labels. Fifth,

[3] ANSI recently recommended for approval the Portable Data File (PDF) 417 as its 2-D symbology standard.

commercial carriers are not required to read DoD's AIT devices.[4] Finally, commercially based AIT standards are used so that DoD cargo can be seamlessly integrated into commercial operations.

| Activity preparing AIT | AIT | Application | Data on AIT | Reading activity | Usage |
|---|---|---|---|---|---|
| Vendors, DoD shipping activities | Linear bar code | Single item | · TCN<br>· Consignee<br>· Piece number<br>· Vendor part number | · Storage sites<br>· Maintenance depots<br>· CCPs<br>· Ports<br>· CRPs<br>· Units | · Receipt<br>· Inventory management<br>· Stock<br>· Issue<br>· Consolidation<br>· Sorting |
| DoD shipping activities (depots, installations, CCPs, APOEs) | 2-D bar code | Multi-packs<br>Air pallets | · TCMD<br>· Bill of lading<br>· Materiel release order | · Storage sites<br>· Maintenance depots<br>· CCPs<br>· Ports<br>· CRPs<br>· Units | · Receipt<br>· Inventory management<br>· Consolidation<br>· Sorting |
| DoD shipping activities (depots, installations, CCPs, ammunition plants and depots, units, pre-positioned sites) | Memory card | Containers, trailers, railcars | · TCMD<br>· Bill of lading<br>· Supply content | · Storage sites<br>· CCPs<br>· CRPs<br>· Units | · Receipt<br>· Inventory management<br>· Stock<br>· Issue |
| Ammunition plants and depots, sea ports, units, CCPs, and pre-positioned sites | RF tag | Containers | · TCMD<br>· Supply content | · Ports<br>· CRPs<br>· Staging areas<br>· Units | · Receipt<br>· Lift status<br>· Container management<br>· Container contents |




***Explanatory notes:*** 1 — 2-D bar codes could be applied to a single item when substantial data are required and the linear bar code cannot accommodate that amount of data; 2 — AMS could generate 2-D bar codes in lieu of a memory card when they can accommodate the amount of supply data required; 3 — ALOC pallets only; and 4 — only containers stuffed at CCPs and containerized ammunition and unit cargo (including pre-positioned afloat or OCONUS). APOEs = aerial POEs; CRPs = central receiving points; 2-D = two dimensional.

**Figure 7-1.**
***AIT Operating Concept***

[4]Some commercial carriers employ AIT to track their containers, railcars, or other conveyances. However, none uses AIT for carrying shipment content information. Some customers input purchase order information into their data base and then match it with the container number and other shipment information that the vendor provides when it releases a container. Many carriers have the capability to cross-reference the container number with a bill of lading number or other shipment reference number, as their customers require. When a container moves through the logistics pipeline, the customer can track its movement using the container number or other shipment reference number and then match that number against the detailed container contents information in a data base. The customer can, in turn, pre-position container status — including content information — with other interested parties (e.g., ports, in-theater reception points, and end user). The Army and Air Force Exchange Service uses this approach to track its direct-vendor deliveries and provide shipment status and advance manifest information to its retail stores.

## Family of AIT Devices

The proposed AIT operating concept is described in more detail below, beginning with the specific uses of the four AITs comprising DoD's hierarchy.

### Linear Bar Codes

Vendors would attach linear bar codes to all items of supply (either directly on the items or their exterior packs). The bar codes would identify the part or item number, support entry into DoD's supply system, and close out contractual requirements. DoD's supply sources, such as maintenance facilities and storage sites, would attach linear bar codes to all shipments [i.e., military shipping label (DD Form 1387) to support transportation and item release/receipt document (DD Form 1348-1A) to support supply] identifying the TCN, consignee, and item number; they would also attach linear bar codes to all items that vendors either failed to label or improperly labeled. Each node in the logistics pipeline would be capable of reading linear bar codes to support local processing requirements, such as receipt, shipment consolidation, or maintenance.

### 2-D Bar Codes

DoD Components would use 2-D bar codes when linear bar codes are incapable of accommodating the amount of information required to process or transport an item. As examples, 2-D bar codes could be used on multipacks, air pallets, and items in maintenance that require detailed historical repair data to accompany them, as well as on supporting documentation. DoD shipping activities (e.g., storage sites, maintenance facilities, installations, aerial ports, and CCPs) would prepare and attach 2-D bar codes to multipacks or air pallets containing multiple items destined for a particular user. Those bar codes would contain both shipment and supply data. All activities preparing 2-D bar codes would use the information on the linear bar codes (attached to the individual items) and the data in their AISs. Several activities would need the capability to read 2-D bar codes, including distribution depots, maintenance facilities, CCPs, aerial and sea ports, receiving points, and using units. The information on the 2-D bar codes would update local AISs and support various processes — receipt, inventory management, shipment consolidation, maintenance, and sorting.

### Optical Memory Cards

DoD Components would use optical memory cards when significant content detail is required, such as for multipack, air pallet, container, trailer, and railcar shipments. (AMS currently employs a standard optical memory card.) Numerous shipping activities would need the capability to prepare and read memory cards, including distribution depots, CCPs, ammunition plants, and sites supporting pre-positioned ships. The cards would contain both supply (requisition) and transportation (TCMD) data. Those data would be used for

receipt processing, discrepancy reporting, and reconstituting shipment data and documentation. Supply activities and CCPs would be the primary generators of memory cards, as well as ports to the extent they consolidate shipments. Receiving activities and support units would be the primary users of memory cards. The cards would update local AISs and support various logistics processes, such as receipt, inventory management, and shipment consolidation.

### Radio Frequency Tags

DoD Components could use RF tags for all ALOC pallet shipments, CCP-stuffed seavan containers, ammunition and unit cargo shipments moving in containers, and pre-positioned cargo.[5] Shipping activities, ammunition plants and depots, units, and pre-positioned ship-support sites would have the capability to prepare and attach RF tags. Under this operating concept, the tags would contain minimal (i.e., "license plate") identification, supply, and transportation data. They would be supplemented with memory cards, which would serve as portable data files for populating local data bases with container content data when pre-positioned data are not available. The primary users of RF tags would be deploying units, ammunition plants and depots, receiving units, support units, and ammunition ports. The tags would update local AISs and support a number of logistics processes, including container management, materiel and container location finding, ammunition port operations, receipt, and distribution to using units.

While the Joint DTAV Office proposes that license plate data be carried on RF tags, that information may be supplemented with content detail at the discretion of the Military Services. However, common-user nodes in the logistics pipeline would not be required to read the supplemental detailed data.

Two DoD Components are currently using RF tags. The Army uses a data-rich, active, omnidirectional RF tag that accommodates line-item detail information, while the Marine Corps uses a similar tag but with a smaller capacity. The Marine Corps relies on local data bases to provide information on the container contents. These different operating concepts arise because of the Army's focus on sustainment and the Marine Corps' on unit cargo. In recognition of the current inventory of Army and Marine Corps RF tags, the Joint DTAV Office believes that both tags should continue to be tested until DoD develops a

[5]The Joint DTAV Office recommends DoD evolve its use of RF tags to other shipments in conformance with best commercial practices. This recommendation recognizes that vendors and most commercial carriers do not currently use RF tags, and almost all containerized cargo (other than unit cargo and ammunition) moves exclusively through commercial channels. Additionally, the current cost and logistics implications of distributing and recycling RF tags to DoD vendors do not support such a requirement. As passive or reflective tag technology becomes less expensive, it could be a substitute for linear or 2-D bar codes. However, RF technology is more likely to cause an evolution in logistics processes. Finally, since common frequencies have not been established for tag operations, various countries have selected their own frequencies. The Joint DTAV Office believes that commercial integration will drive the need for common frequencies over the next decade. DoD should support those efforts whenever possible.

comprehensive AIT implementation plan and embraces an ANSI-approved RF tag.

## Illustrating the Concept

To help explain this operating concept in more detail, the following description generally traces an asset from the time it is received at a storage site until an OCONUS supply activity receives the asset. The description does not include every step in the logistics process, and it assumes the container in which the asset is transported is destined for a single receiving activity:

- The storage activity would scan the linear bar code that the vendor placed on the asset and automatically update its inventory records.

- The asset would then be routed to a designated storage location, which would also be labeled with a linear bar code. When the asset is placed in the storage location, the bar codes on the asset and storage location would be scanned and that information forwarded to the activity's AIS.

- A materiel release order would generate an instruction to pick an asset at the storage activity. This document would contain both a linear bar code that identifies the asset and a 2-D bar code containing asset and requisition information. When the asset is removed from storage, the linear bar codes on the asset and storage location would be scanned and that information forwarded to the activity's AIS to record a change to the inventory records.

- The shipping activity would scan the linear bar code on the asset and compare that information with the pre-positioned information received from the supply activity's AIS. If the information matches, the shipping activity would accept the asset for shipment. If the information does not match, then the shipping activity would create a shipment record by scanning the 2-D bar code on the materiel release order. If the shipping activity consolidates the asset with others for shipment, it would scan the linear bar code on the materiel release order to associate the asset with the consolidated shipment.

- The shipping activity would then attach a bar-coded MSL to the shipment unit, whether a box, multipack, or container. The MSL would have a linear bar-coded TCN and piece number and a 2-D bar code containing detailed transportation data (i.e., TCMD). When the shipment unit needs to be accompanied by detailed content information beyond the data capacity of a 2-D bar code, the shipping activity would also prepare and attach a memory card to the shipment unit. Finally, the shipping activity would prepare and transmit an EDI movement document to the next destination.

- If the shipment unit was sent to a CCP, the CCP would clear the inbound movement document (i.e., the GBL) by comparing the bar-coded TCN on the shipment unit with pre-positioned information. It would also match

that data with the TCMD data already on file in the CCP's AIS. If no detailed data are on file, the CCP would read the information on the 2-D bar code portion of the MSL (DD Form 1387) and DD Form 1348-1A to create the needed information. Similarly, where applicable, detailed supply data for the shipment would be read into the CCP's AIS from the memory card.

- When the shipment unit is loaded into a container, the CCP would scan the shipment unit MSL to record that the unit was placed in a particular container. Once the container is loaded, the CCP would prepare and attach a bar-coded MSL to the container, create either a 2-D bar code or memory card with detailed supply content information, and load and attach an RF tag to all the containers destined overseas. The CCP would prepare and electronically transmit a movement document for the container to the POE. (Sustainment cargo is generally sent to a commercial port for movement on a container ship overseas. Unit cargo and ammunition are typically shipped through military terminals.)

- The theater receiving point would process the container using the data on the RF tag. If pre-positioned content information is not available or incomplete, the attached AIT device would be read to update the local data base.

- The destination activity would process the container (or individual shipment or multipack) by reading the attached AIT device. It would also read the AIT device when outchecking the shipment unit to the receiving supply activity.

- The receiving supply activity would record receipt of the container by reading the supply data on the attached AIT device.

## Issues and Actions

Before it can implement the proposed concept of operations for AIT, DoD needs to resolve several issues discussed below:

*Issue 1.* DoD Components are pursuing separate AIT strategies that could lead to incompatible applications and restrict DoD's ability to monitor the status and location of its assets.

*Action.* Establish an Executive Agent for AIT that would serve as a clearinghouse for AIT applications in logistics; coordinate logistics AIT research and applications with other functional areas; represent DoD's interests before AIT standards organizations; grant waivers to standards as appropriate; advocate process improvements through the use of AIT; approve AIT applications; support demonstrations aimed at expanding the use of AIT to other logistics functions, particularly those key to effective deployments; ensure compatibility of devices, codes, and equipment; and prepare a plan for expanding AIT applications and supporting the proposed AIT operating concept. The Army has been

assigned the responsibility of Executive Agent for AIT and will pursue the above actions.

*Action.* Prepare a plan for merging existing AIT capabilities, expanding their applications, and implementing an infrastructure to support the proposed AIT operating concept.

*Issue 2.* Although DoD Components are making extensive use of bar codes to enhance their logistics processes, some are not capable of automatically updating AISs.

*Action.* Establish a program for acquiring linear and 2-D bar-code scanning devices and supporting hardware that are capable of directly accessing logistics AISs.

*Issue 3.* Various DoD Component logistics processes use incompatible data elements, documents, and label formats, which severely restricts DoD's ability to achieve TAV.

*Action.* Develop and implement, to the maximum extent practical, standard data elements, documents, label formats, and procedures for use in all logistics processes.

*Issue 4.* DoD Components are also using various protocols to link AIT devices to their AISs. Many of those protocols are incompatible.

*Action.* Develop and use standard protocols for linking AIT devices to logistics AISs and for linking AISs.

*Issue 5.* Although DoD has identified a number of migratory and standard logistics systems, the AIT requirements for those systems may be inadequate.

*Action.* Integrate AIT capability into migratory logistics systems and standard logistics AISs.

*Issue 6.* Unless vendors attach AIT devices to all newly procured DoD assets, asset visibility will be limited.

*Action.* Modify acquisition contracts to require the generation and attachment of AIT devices to all assets being acquired.

*Issue 7.* Since organizations other than DoD supply activities and maintenance facilities ship assets to DoD users, AIT devices need to be attached to all shipment units from those organizations. The procedures requiring the use of AIT devices on those shipments need to be developed.

*Action.* Develop procedures for expanding use of AIT to all General Services Administration and vendor shipments.

*Issue 8.* Although the use of RF tags is key to the proposed AIT operating concept, some of those tags may not be used in selected overseas areas.

*Action.* Identify and resolve barriers to using RF tags and selected frequencies in overseas areas.

*Issue 9.* DoD's use of AIT may not be consistent with that planned in the private sector.

*Action.* Identify standard industry practices and incorporate them into an approved suite of AIT applications.

## SUMMARY

This chapter presents an overview of DoD's requirements for AIT, describes an operating concept for using a family of AIT to satisfy DoD's requirements, identifies several ongoing initiatives, and lists a number of actions that DoD needs to take before it can implement the proposed concept.

Much of the material in this chapter hinges upon current AIT capabilities and limitations. It also recognizes the substantial investment that the Army and Marine Corps have already made in RF applications. Because no single AIT device will satisfy DoD's logistics requirements, the Joint DTAV Office recommends DoD embrace a family of AIT devices and integrate those devices into its logistics functions.

The Joint DTAV Office further believes that DoD must remain a leader in pursuing leading-edge AIT applications to enhance its logistics processes. Such a position mandates adoption of a flexible AIT operating concept to accommodate new technologies and applications without disrupting existing processes and operations.

CHAPTER 8

# Rapid Prototyping and Demonstrations

## OVERVIEW

This chapter describes several prototype and demonstration projects for improving TAV capabilities. These projects, which focus on developing a rapid TAV prototype capability for theater CINCs and JTF commanders, apply maturing technologies to address specific TAV concerns, demonstrate the capabilities of new technologies, and test solutions to current deficiencies.

## RAPID PROTOTYPE OF JTAV

JTAV is intended to integrate information from disparate Military Service data bases into a central repository at the theater CINC or JTF level to provide deployed forces with improved asset visibility. Initial development efforts focus on mapping and merging subsets of Military Service application data bases to a central logistics repository and developing preformatted and ad hoc query capabilities. Phase I will integrate the Marine Corps' MAGTF II Logistics AIS; Air Force's SBSS; Navy's Shipboard Nontactical ADP Program (SNAP); Army's SARSS-O, ATAV and Logistics Intelligence File (LIF); LIPS; and GTN into a common data base as a proof of concept. Further efforts to integrate other Military Service AISs will follow. In addition, later phases will focus on establishing connectivity to GCCS and ICP AIS. Eventually all logistics AISs that theater CINCs and JTF commanders can reasonably expect to use will be integrated via translation software.

JTAV is intended to provide logisticians with a near real-time decision support capability comparable to that provided by GCCS for operational planning and execution. It will provide integrated data to theater CINCs and JTF commanders for use in decision support tools that balance logistics capabilities with planning and execution functions. (A variety of decision support tools are under development in separate efforts.) JTAV will use information developed and maintained by the Military Services for their own requirements, which will ensure that theater CINCs and JTF commanders have access to uniform, current, and accurate data consistent with their supporting Military Service component.

The JTAV demonstration effort will require information from various Military Service and Defense agency data bases for populating the JTAV central logistics repository. Unit deployment data will be required from the Army, Navy, Air Force, and Marine Corps systems that provide data to the Joint Operational Planning and Execution System. The data will provide theater managers

with a view of unit deployment assets inbound and available in theater. GTN will provide transportation information to give some visibility over unit materiel in-transit to the theater. LIPS will provide information on logistics sustainment and requisition status.

Suites of JTAV hardware will be fielded as part of the TAV demonstrations leading to the prototype demonstration at JWID in September 1995.

## Joint Personnel Asset Visibility System

The purpose of the Joint Personnel Asset Visibility (JPAV) System is to provide theater CINCs and JTF commanders with accurate and timely information on personnel entering, remaining in, and departing their areas of operations. The Joint Staff, Military Services, Defense agencies, and Office of the Secretary of Defense will also have access to that information.

JPAV will use information contained in manifests from GTN and naval assets assigned to the CINCs or JTF commanders. The social security number will be used as a key to access personnel information from various personnel data bases, such as those in the Military Services and at DMDC. Those data will be mapped and merged into the JPAV System data base using the same procedures described for JTAV. JPAV will then correlate unit location information from GCCS with unit assignment information to provide individual personnel location information.

## Warner Robins Automated Systems Demonstration

The Warner Robins Automated Systems Demonstration consists of several projects aimed at yielding functional process improvements through cross-functional integration. The purpose of the demonstration is to improve the interface between wholesale item managers and their retail customers, with an ultimate objective of enhancing logistics response time and user confidence. The demonstration's thrust is to provide logisticians with on-line access to asset information in several data bases.

One project will focus on the IMM's access to inventory data in supply and maintenance depots, procurement activities, installation-level supply activities, and excess property transferred for disposal. In this project, inventory data will be used to define acquisition requirements and redistribute assets. It will also provide item managers with access to data aggregated at the wholesale level within the Military Services and operational users with better access to information on the status of requisitions. The project will give operational users access (via LIPS and GTN) to data previously available only to item managers. The objectives include greater responsiveness to operational users' demands for

information and better visibility to IMMs over all phases of asset acquisition, repair, distribution, and transportation.

Warner Robins Air Logistics Center has been selected as the demonstration site, primarily because it has an ICP and depot maintenance facility. It is also the site of a Defense megacenter that will provide the information processing requirements of DoD standard systems for several installations.

Other projects that entail TAV-related efforts include Depot Stock Visibility and Management, In-Transit Tracking/Asset Visibility, Asset Tracking/ Visibility in Commercial Repair Facilities, and Interservice Workload Transfers Management. These efforts will use a subset of migration applications from MMS and such logistics digital data initiatives as the Joint Continuous Acquisition and Life-Cycle Support, Joint Engineering Data Management Information and Control System, and Automated Document Conversion System.

## JOINT WARRIOR INTEROPERABILITY DEMONSTRATION

JWID is an annual exercise that is primarily focused on command, control, communications, and intelligence. The Military Services host JWID on a rotating basis, with JWID 95 having been hosted by the Marine Corps at Camp Pendleton, California, in September. JWID 95 was the first major demonstration of enhanced logistics capabilities for a deployed JTF. In previous JWIDs, logistics capabilities were not specifically demonstrated.

During each JWID, several operational and technical system capabilities are exhibited. An operational demonstration shows a system that is nearly fully developed and ready for fielding. A technical demonstration exhibits a system that is less developed, but has potential value. Technical demonstrations are usually included the following year as operational demonstrations.

The technical capabilities of JTAV were demonstrated at JWID 95. This demonstration showed how CINC/JTF staffs can query in-theater asset balances and requisition and shipment status to improve command and control decision-making. It also demonstrated the use of information technology in planning, managing, and training units to apply modern warfare concepts, including the use of modeling, simulation, and distributed processing capabilities.

JWID 95 had three distinct scenario phases: a short-notice, from-the-sea disaster response in a mid-Pacific nation; planning and rehearsal operations in southern California in support of a Southeast Asia lesser regional contingency involving combined forces; and a disaster response to an earthquake in the south central part of the United States. A major thrust for this JWID was ensuring that GCCS Version 2.0/2.X is a viable system.

# AMMUNITION TRACKING DEMONSTRATION

The ammunition tracking demonstration focuses on the use of the Military Services' legacy ammunition systems, AIT, and DTTS to improve the asset visibility of arms and ammunition during rail movements and while in-transit to overseas locations. The goal is to provide comprehensive visibility of ammunition, from the initial storage location, while in-transit, and through receipt and storage at a destination.

DTTS was created in 1989 to satisfy a need for increased visibility and security of selected ammunition shipments. It uses satellites to monitor the movement of munitions and high-value or sensitive military cargo on commercial trucks throughout CONUS. Although most arms and ammunition shipments are moved by truck, rail movements constitute most of the tonnage. However, DTTS only tracks rail shipments on an exception basis, and it does not operate OCONUS.

The concept for this demonstration calls for expanding DTTS to include all modes of ammunition shipment and to track ammunition shipments OCONUS. The demonstration will show the feasibility of using the commercial railroad tracking system in conjunction with EDI techniques, RF tags, memory cards, and bar codes to obtain asset visibility while ammunition shipments are in-transit. It will also complement efforts by the CONUS Class I railroads to equip their interchange fleet with tracking devices.

The demonstration will be divided into three phases to take advantage of lessons learned during implementation. The first phase will include applying AIT devices to most government-owned ammunition shipping containers and tracking commercial rail cars using TeleRail Automated Information Network II (TRAIN II), an Association of American Railroads standard system. The second phase calls for attaching AIT devices to all ammunition containers and using AIT to support the movement of all containerized arms and ammunition shipments. Phase III will advance the application of AIT to include the use of RF tags capable of transmitting directly to a satellite and the addition of smart locking devices for increased security.

This demonstration has the potential to improve DoD's visibility of arms and ammunition while in-transit and, with the ongoing effort to develop AMSS, should result in an overall improvement in ammunition operations DoD-wide. The improved visibility will permit more comprehensive management of ammunition shipments while in-transit, reduce the amount of time shipments are exposed to the public, and provide for quick response in the event of an accident or incident.

# Lateral Redistribution and Procurement Offset Project

The lateral redistribution and procurement offset project is aimed at DoD Components sharing assets in storage at the retail level and sharing assets below the retail RO. It has resulted in formal agreements between DoD Components to provide visibility of their retail-level stocks of DLA-managed assets to IMMs for two primary purposes: using retail assets as another source of supply to satisfy backorders for other Military Service retail activities and using retail assets above ROs in lieu of procuring more assets.

The agreements between DLA, Navy, and Air Force use a pricing policy that ensures the unit giving up the item is paid the standard price, and it is reimbursed for packing, crating, handling, and transporting the asset to the requesting unit. The IMM who directs the transfer also receives credit for a sale. The Army is scheduled to participate in this project beginning in the latter half of 1995. The Marine Corps is completing a statement of work to support lateral redistribution and procurement offset capability for consumables between it and DLA, which will soon be forwarded to JLSC for funding. The project needs to be expanded to include reparable assets. DoD Components have agreed to a concept for providing PICA-SICA visibility of reparables for both legacy systems and MMS. Although draft functional descriptions and statements of work have been developed, various business rules must be refined to ensure that all DoD Components are treated equitably.

# Issues and Actions

DoD has a number of rapid prototypes and demonstrations planned that will enhance its TAV efforts. Several issues and actions related to those prototypes and demonstrations are identified below.

*Issue 1.* The focus of the current lateral redistribution project is too limited.

*Action.* Increase the participation of DoD Components in the lateral redistribution project and expand the concept to include reparable assets.

*Issue 2.* DTTS has focused on ammunition shipments moving in trucks throughout CONUS. Current capabilities of all programs should be reviewed to broaden DoD's focus to include other transportation modes for both domestic and overseas shipments.

*Action.* Develop a plan for expanding DTTS to rail and OCONUS shipments.

*Action.* Determine the requirements for AIT to support the expansion of DTTS.

*Action.* Explore use of TRAIN II for tracking ammunition shipments moving by rail and integrate its capabilities into DTTS, as appropriate.

*Action.* Integrate AMSS development efforts with the expansion of DTTS.

*Action.* Expand DTTS to include all movements of arms and ammunition, whether destined for CONUS or OCONUS activities.

*Action.* Develop an interface between DTTS and JTAV.

*Action.* Explore the feasibility of using AIT to enhance security of ammunition in port operations.

CHAPTER 9

# Execution Strategies

## OVERVIEW

This chapter describes the execution strategies and program issues that will contribute to the successful implementation of this plan. It addresses the priorities, critical factors, funding strategies, and responsibilities for making TAV become a reality within DoD. This chapter is supplemented by Appendix D, which presents an implementation schedule that includes milestones and dates.

## PRIORITIES

The TAV initiative is a major effort that requires the integration of processes, data bases, AISs, communications networks, and policy decisions across DoD Components, functional areas, business lines, and operational chains of command. Effective TAV also depends on other related efforts, such as the CIM program. Long-term TAV initiatives need to be interfaced with CIM standard systems efforts, while the near-term initiatives will be accomplished within existing legacy systems, whenever feasible and economical. Although TAV implementation cannot be accomplished quickly, DoD's objectives for TAV will never be achieved if implementation is delayed until the ideal solution is found. On the other hand, TAV elements that provide a relatively fast payback can be built and implemented external to the CIM effort.

TAV priorities should address both the most critical areas and the areas that can be accomplished quickly with small investments. They also should be the basis for the execution strategies.

## CRITICAL FACTORS TO SUCCESS

The success of DoD's TAV effort hinges on a number of critical factors. Those factors must be intensively managed if the TAV effort is to succeed. Some of the critical TAV factors are listed below:

- *Integration.* Above all else, TAV is an integration effort. It is not only the integration of data bases, open architectures, DoD technical standards, AISs, and communications networks, but also the integration of functional business processes that have historically operated separately. It cuts across DoD Component lines; the private sector; the wholesale and retail echelons of

supply; the functional logistics processes of supply, maintenance, and transportation; and the full spectrum of peacetime and wartime activities.

- *Communications.* In its purest form, TAV is the sharing of information. As a consequence, it requires assured and robust communications. The success of TAV will be affected significantly by the supporting communications infrastructure.

- *Data standardization.* To exchange information electronically, both the transmitter and receiver must use the same data elements and formats. For TAV to succeed, DoD Components must strive to standardize their logistics data. If DoD Components maintain unique dictionaries, TAV will not be achieved.

- *Data integrity.* The data that are exchanged must be accurate and timely. If either condition is not met, the program's credibility will suffer and support will wane. In addition, the processes for reporting information must be designed to be transparent to the organizations performing the tasks that are being reported.

- *Pre-positioned data.* The pre-positioning of data at logistics activities and TAV data bases is an essential element of a successful TAV program. Pre-positioned data at logistics activities support workload planning, reduce paperwork, and maximize the use of AIT to speed the processing of logistics actions and data. The logistics data pre-positioned at the TAV data bases provide the desired visibility over Defense assets.

- *Business rules.* Effective and commonly applied business rules are key to achieving TAV and using that visibility to reengineer DoD's logistics business processes. However, DoD Components must agree on those business rules to ensure the full benefits are reaped.

- *Program management.* Successful TAV implementation will require DoD Components to control costs, meet scheduled milestones, demonstrate interim successes, and ensure the final product satisfies customer requirements. Cost, schedule, and performance are the primary focus of a program management office, which must be established to ensure that these program functions are accomplished.

## ORGANIZATIONAL RESPONSIBILITIES

An effective TAV program will require continued oversight and management to provide constancy of purpose and achieve a fully integrated effort. That oversight and management will be provided in the following ways.

The DUSD(L), through the TAV Executive Agent, will be the focal point for all TAV activities and issue associated policy and guidance.

A DTAV Council will provide a forum for senior Defense leaders to discuss issues and approve TAV recommendations that affect the logistics community. The Council will provide broad program guidance, oversee program execution and milestones, approve the allocation of resources to TAV initiatives, and review the process of TAV implementation. Chaired by the DUSD(L), the Council will consist of the Deputy Chiefs of Staff (DCS) for Logistics or equivalent of each Military Service; the Director, DLA; the Director, DISA; the Director for Manpower and Personnel (J-1) and the Director for Logistics (J-4), Joint Staff; and the Deputy CINC, USTRANSCOM.

The scope and complexity of TAV require daily management. To provide that management, the DUSD(L) has appointed the U.S. Army as the Executive Agent for TAV and directed the establishment of a Joint DTAV Office to be staffed with personnel from each organization represented on the DTAV Council. The Joint DTAV Office will also include representation from the JLSC and JTCC. (The Joint Staff, JLSC, and JTCC will coordinate and provide liaison as required.)

The Joint DTAV Office will identify the requirements for business rules as a part of the outcome of architectural analysis. The Joint DTAV Office will make recommendations, coordinate efforts, and aid in the arbitration of issues in regard to obtaining DTAV.

The Joint DTAV Office will assist in expediting the rapid development, implementation, and integration of the TAV program among DoD Components (and other Federal agencies and the private sector, as appropriate). Execution management will remain with the DoD Components, including USTRANSCOM for ITV; DLA for initiatives involving lateral redistribution, AMS, and interface between DAAS and GTN; and Military Services for initiatives such as theater distribution and pre-positioned stock tagging. The Joint DTAV Office will also oversee the integration and coordination of all TAV-related prototypes and demonstrations not assigned to a particular DoD Component. It will coordinate with other organizations to clarify roles and to avoid duplication in TAV-related actions. Figure 9-1 provides an overview of the proposed Joint DTAV organizational structure.

The Joint DTAV Office may solicit technical assistance on a priority basis from DoD Components, Defense Logistics Management Standards Office, and established CIM centers. Every DoD Component should designate a point of contact for TAV activities and for providing feedback to the Joint DTAV Office. In addition, the Director, Joint DTAV Office, will have the authority to obtain technical assistance from Federally Funded Research and Development Centers (FFRDCs) and private-sector contract organizations. The Joint DTAV Office may form ad hoc working groups involving DoD Component representatives, as needed.

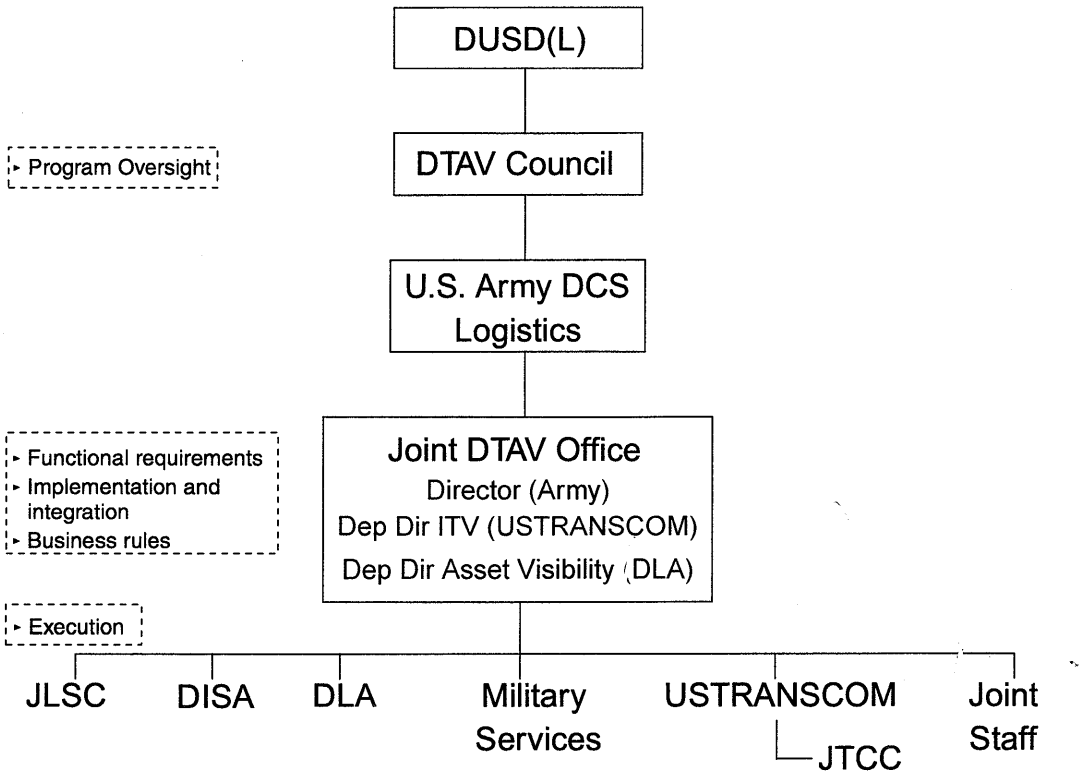



**Figure 9-1.**
***Joint DTAV Organization***

The specific responsibilities of the Joint DTAV Office include the following functions:

- Monitor execution of this plan and advise the DTAV Council on the status of its implementation
- Program and budget for TAV prototypes and demonstrations
- Identify DoD's TAV priorities and provide major milestone schedules for TAV development
- Facilitate the development, implementation, and integration of TAV initiatives among DoD Components, other Federal agencies, and commercial carriers, shippers, and vendors
- Improve TAV functionality in the near term and provide for the continuous development of a TAV infrastructure on which to build future improvements

- Promote integration of existing AISs and identify improvements in the ability of standard systems, applications, and associated data bases to share and exchange information

- Refine functional requirements for asset visibility information, as required; and monitor the degree to which current and future logistics AISs satisfy TAV requirements and are capable of sharing asset information among DoD Components and customers.

## FUNDING STRATEGY

DoD Components are the primary benefactors of TAV information through improved operational readiness, business process improvements, and shared and improved logistics information. These benefits will translate into operational savings beyond the incremental expense of achieving TAV. As a consequence, some of the savings gained through TAV should be made available to continue TAV development and garner additional savings. TAV funding falls into the following three categories:

- Office of the Secretary of Defense funding, to launch the *Defense Total Asset Visibility Implementation Plan* and establish the Joint DTAV Office

- DoD Component funding, to support near-term TAV investments for improving applications systems, procuring hardware, supporting process improvements, developing migration strategies to standard systems, accomplishing technical and functional integration, eliminating the use of legacy systems, and developing rapid prototypes to achieve compliance with Defense Information Infrastructure requirements

- DoD Component funding (from the savings achieved from application of early TAV initiatives), to continue enhancements to achieve additional savings.

The Joint DTAV Office will program and budget for its long-term support and will brief the DTAV Council on how DTAV funding will be used. The Director, Joint DTAV Office, will evaluate resource alternatives, including use of the CIM central fund, establishment of a capital account using DBOF procedures, and designation of a line item in the DoD program; and provide associated recommendations to the DUSD(L). The Director, Joint DTAV Office, will also identify all other resource requirements and justify and defend them to the Department of Army Deputy Chief of Staff for Logistics, DUSD(L), DoD Comptroller, and Congress.

DoD Components will support the administrative activities of the Joint DTAV Office, primarily by providing the personnel resources outlined previously. They will also continue to provide the resources for the systems and capabilities that they are developing in support of TAV and specific Component requirements.

# RESOURCE REQUIREMENTS

The Joint DTAV Office will perform a comprehensive analysis of the total cost to implement the *Defense Total Asset Visibility Implementation Plan.* This analysis should be performed in close coordination with the CIM centers and DoD Components. Listed below are several cost categories and associated cost elements that the Joint DTAV Office should consider in its analysis.

## General Cost Categories

The general cost categories, as a minimum, include

- requirements analysis, including data elements, user interfaces, report formats, storage capacities, and response times;
- functional design;
- system design and systems engineering;
- data mapping;
- software systems development;
- systems integration;
- software testing;
- standard systems migration;
- hardware procurement;
- rapid prototyping;
- system integration testing including testing and measures of effectiveness;
- documentation;
- training;
- integrated logistics support planning;
- implementation support; and
- materiel fielding and sustainment support.

## Cost Elements for TAV Development

The cost elements for TAV development include the following:

- Full implementation of DLMS Version 2.0, development of additional standardized data formats and communications protocols to be compatible with those used in GCCS
- Development and implementation of JTAV
- Complete development and implementation of GTN and associated system interfaces
- Complete development and implementation of LIPS
- Enhancements to MMS, DMS, and AMSS to fully accommodate the TAV operating concept
- Enhancements to ICP AIS (other than the commodities covered by MMS and AMSS) to fully accommodate the TAV operating concept
- Procurement of AIT and establishment of a supporting infrastructure
- Complete development and implementation of CAV
- Provisions of supportability for hardware and software deployed to user sites by the Joint DTAV Office through prototyping or development
- Modification of DAASC's systems to monitor and process asset reports, queries, and responses
- Upgrades to DISN to accommodate increased volume of data transmissions for TAV
- Enhancements to the retail supply AISs (including DBOF-funded repair activities), including the following:
  - Army
    - Standard Army Retail Supply System
    - Army Materiel Command Installation Supply System
  - Navy
    - Uniform Automated Data Processing System
    - Shipboard Nontactical ADP Program

- Navy Air Systems Command's Industrial Materiel Management System
- Shipyard Management Information System
- Industrial Logistics Support Management Information System

► Marine Corps

- Supported Activities Supply System

► Air Force

- Standard Base Supply System
- Depot Supply Stock Control and Distribution System.

APPENDIX A

# Glossary of Terms

This appendix defines some of the terms used in this plan.

**Advanced Concept Technology Demonstration (ACTD).** An initiative, under the auspices of the Under Secretary of Defense for Acquisition and Technology, to accelerate the transition of maturing technologies with a potential to rapidly provide improved military capabilities or technological solutions to specific emerging operational challenges. ACTD is a short-term program that seeks to provide a militarily significant residual capability at the end of the demonstration.

**Approved Acquisition Objective (AAO).** See requisitioning objective.

**Automatic Identification Technology (AIT).** Process control hardware, application software, and hybrids that provide industry-standard real-time data acquisition to enhance productivity. It includes bar codes, radio frequency identification, magnetic stripes, smart cards, and optical memory cards. In DoD logistics, these technologies facilitate the capture of supply, maintenance, and transportation information for inventory and movement management, shipment diversion and reconstitution, and personnel or patient identification.

**Cargo.** Any materiel or item of supply in-transit.

**Component.** A Military Service or Defense agency. The term "DoD Components" refers to all Military Services and Defense agencies.

**Consumable Item.** An item of supply (except explosive ordnance, major end items of equipment, and reparables) that is normally expended or used up beyond recovery in the use for which it is designed or intended.

**Consumer Level of Supply.** An inventory, regardless of funding source, usually of limited range and depth that is held only by the final element in an established supply distribution system for the sole purpose of internal consumption.

**Consumer-Level Stock.** The lowest retail level of supply.

**Defense Logistics Management System (DLMS).** A system governing logistics functional business management standards and practices to include management policy, responsibilities, procedures, rules, and electronic data communications standards. These standards support logistics operations in the areas of supply, transportation, contract administration, requirements, maintenance, and finance. DLMS is not an automated information system, rather it provides an

infrastructure for the establishment and maintenance of procedural guidance for implementing DoD's logistics policies.

**Defense Logistics Standard Systems (DLSS).** A series of documented standard systems and programs prescribing data elements, codes, formats, documents, forms, rules, methods, and uniform procedures applicable to specific logistics functions. It is DoD policy that these standard systems shall be used in logistics functional areas, such as inventory management, contract administration, storage, distribution and redistribution of materiel, transportation and movement, billing, and collections. DLSS include MILSTRIP, MILSTAMP, and MILSTRAP.

**Depot-Level Reparable Item.** A reparable item of supply that is designed for repair at depot level or for repair below the depot level, but if repair cannot be accomplished at that level, the unserviceable carcass is either forwarded to a depot for repair or condemnation, or reported to an inventory control point (ICP) for disposition.

**Deployment.** The relocation of forces to areas of operation.

**Economic Retention Stock.** The quantity of an item that is greater than the AAO and determined to be more economical to retain for future peacetime issues than to dispose and satisfy projected future requirements through new procurement and/or repair.

**Electronic Commerce (EC).** The paperless exchange of business information using electronic data interchange, electronic mail, electronic bulletin boards, electronic funds transfer, and other similar technologies.

**Electronic Data Interchange (EDI).** The computer-to-computer exchange of data from common business documents using standard data formats.

**Excess.** Materiel that has completed reutilization screening and is not required for the needs and discharge of responsibilities of any activity.

**Field-Level Reparable Item.** A reparable item of supply that is normally repaired below the depot level of maintenance and for which condemnation authority can be exercised below the depot level of maintenance.

**In-process Assets.** Assets on order from DoD vendors and not yet shipped, assets in repair at depot-level organic or commercial repair facilities, and assets in repair at intermediate repair facilities.

**In-storage Assets.** Assets in-storage at retail consumer sites, at retail intermediate storage sites, at disposal activities, or in wholesale inventories, to include ashore and afloat pre-positioned assets.

**Integrated Materiel Manager (IMM).** Any DoD activity or agency that has been assigned wholesale integrated materiel management responsibility for the DoD and participating Federal agencies. Integrated materiel management

responsibilities include cataloging, requirements determination, procurement, distribution, overhaul, repair, and disposal of materiel. IMM, ICP, and materiel manager are synonymous terms.

**Intermediate Supply**. Any level of inventory between the consumer and wholesale level of inventory; it is also considered retail level. Intermediate supply, intermediate level of inventory, and retail intermediate echelon are synonymous terms.

**Inter-Service**. Relating to more than one Military Service.

**In-transit Assets**. Materiel that is between storage locations, either wholesale or retail; materiel shipped from vendors after acceptance by the government but not yet received by the inventory manager; materiel temporarily in use or on loan with contractors or schools; or materiel that cannot be otherwise categorized. In-transit assets are not included in the records of wholesale inventory used in the stratification process.

**In-transit Visibility (ITV)**. The ability to track the identity, status, and location of DoD unit and non-unit cargo (excluding bulk petroleum, oils, and lubricants); passengers; medical patients; and personal property from origin to the consignee or destination designated by the Commanders-in-Chief, Military Services, or Defense agencies during peace, contingencies, and war.

**Intra-Service**. Relating to only one Military Service.

**Inventory Control Point (ICP)**. See Integrated Materiel Manager.

**Inventory Control Point Automated Information System (ICP AIS)**. The primary automated information system of an ICP. Among the functions supported by an ICP AIS are requisition processing, stock control, replenishment, and requirements determination. For TAV purposes, the ICP AIS is the central data repository for materiel assets in-storage and in-process.

**Legacy System**. An automated information system that performs the same functions as those performed by selected migration systems. A legacy system has a finite life, with all further system development and modernization resources applied to the migration system.

**Materiel**. All items (including end items and related spares, repairs parts, and support equipment, but excluding real property, installations, and utilities) necessary to equip, operate, maintain, and support military activities.

**Materiel Management**. Continuing actions relating to planning, organizing, directing, coordinating, controlling, and evaluating the application of resources to ensure the effective and economical support of military forces. It includes provisioning, cataloging, requirements determination, acquisition, distribution, maintenance, and disposal.

**Migration System.** An existing or planned AIS officially designated to support standard processes.

**Military Standard Billing System (MILSBILLS).** Uniform procedures, data elements, codes, and formats to be used for billing and related adjustments, collections, and accounting for sales and redistribution of material.

**Military Standard Requisition and Issue Procedures (MILSTRIP).** Uniform procedures, data elements, codes, formats, forms, and time standards that control the interchange of logistics information relating to requisitioning, supply advice, supply status, shipment status, materiel release, issues and receipts, returns, and redistribution processes.

**Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP).** Uniform procedures, data elements, codes, formats, forms, and time standards that govern the flow of inventory accounting information pertaining to receipt, issues, and adjustment actions, including asset status reporting and small arms serial number registration and reporting. Procedures are applicable between ICPs, stock control activities, storage and depot sites, and posts, camps, or bases (unless specifically exempted).

**Military Standard Transportation and Movement Procedures (MILSTAMP).** Standard data elements, codes, formats, documents, forms, rules, methods, and procedures that DoD Components and other government agencies use in the transportation and movement of materiel to, within, and outside the Defense Transportation System.

**Redeployment.** The process of evacuating, moving, or returning units, non-unit cargo, and non-unit personnel from a theater of operations to another theater of operations.

**Reparable Item.** An item of supply subject to economical repair and for which the repair (at either depot or field level) is considered in satisfying computed requirements at any inventory level.

**Requisitioning Objective.** The maximum quantity of materiel to be maintained on hand and on order to sustain current operations and core war reserves. It consists of the sum of stocks represented by the operating level, safety level, repair cycle, and order and ship time.

**Retail-Level Supply.** All secondary items stored within DoD intermediate and consumer levels of supply. (Retail-level assets do not include end-use secondary item materiel.) These items include supply levels down to the following:

- Army — to Authorized Stockage List and installation
- Navy — to shipboard and shore stations

- Air Force — to base supply
- Marine Corps — to Marine Expeditionary Force and base supply.

**Retention Limit**. The sum of the requisitioning objective and economic retention stock. It is the maximum quantity of an item authorized for retention.

**Retrograde**. Non-unit cargo and personnel evacuated from a theater of operations to CONUS.

**Secondary Items**. Consumable and reparable items other than principal items.

**Structured Query Language**. A language used to interrogate and process data in a relational data base.

**Stratification**. An analysis of inventory assets that provides for the accumulation, extraction, and display of basic supply data in a manner that relates assets to requirements in a specific priority and time sequence. It portrays assets against the purpose for which those assets are held.

**Total Asset Visibility (TAV)**. The capability for both operational and logistics managers to obtain and act on information on the location, quantity, condition, movement, and status of assets throughout DoD's logistics systems. TAV includes all levels and all secondary items, both consumable and reparable.

**Uniform Materiel Movement and Issue Priority System (UMMIPS)**. A system of priorities used for the requisitioning and movement of DoD materiel. UMMIPS provides time standards for requisition processing and materiel movement for use by all DoD distribution and transportation activities.

**Wholesale Supply**. The highest level of organized DoD supply that procures, repairs, and maintains stocks to resupply the retail levels of supply. The terms wholesale supply, wholesale level of supply, and wholesale echelon are synonymous.

APPENDIX B

# Acronyms

Acronyms used in this plan are listed below with other common total asset visibility (TAV) abbreviations for ready reference.

| | | |
|---|---|---|
| AAO | = | Approved Acquisition Objective |
| ACA | = | Airlift Clearance Authority |
| ACTD | = | Advanced Concept Technology Demonstration |
| ADAM III | = | Aerial Port Documentation and Management System |
| ADANS | = | Airlift Deployment Analysis System |
| ADCS | = | Automated Document Conversion System |
| ADP | = | Automated Data Processing |
| AFC2S | = | Air Force Command and Control System |
| AFEMS | = | Air Force Equipment Management System |
| AFLIF | = | Air Force Logistics Information File |
| AFMC | = | Air Force Materiel Command |
| AFRAMS | = | Air Force Recoverable Assembly Management System |
| AFREM | = | Air Force Readiness Equipment Module |
| AFWCCS | = | Air Force Wing Command and Control System |
| AIMI | = | Aviation Intensively Managed Item |
| AIS | = | Automated Information System |
| AIT | = | Automatic Identification Technology |
| ALOC | = | Air Line of Communication |

| | | |
|---|---|---|
| AMC | = | Air Mobility Command |
| AMCISS | = | Army Materiel Command Installation Supply System |
| AMCL | = | Approved MILSTAMP Change Letter |
| AMMOLOGS | = | Ammunition Logistics System |
| AMS | = | Automated Manifest System |
| AMSS | = | Ammunition Management Standard System |
| ANSI | = | American National Standards Institute |
| APACCS | = | Aerial Port Automated Command and Control System |
| APOD | = | Aerial Port of Debarkation |
| APOE | = | Aerial Port of Embarkation |
| AREM | = | Army Readiness Equipment Module |
| ASIFICS | = | Airlift Service Industrial Fund Integrated Computer System |
| ASL | = | Authorized Stockage List |
| ASO | = | Aviation Supply Office |
| ASPUR | = | Automated System for Processing Unit Requirements |
| ATAC | = | Advanced Traceability and Control |
| ATAC-AF | = | Advanced Traceability and Control — Air Force |
| ATAV | = | Army Total Asset Visibility |
| ATCC | = | Air Terminal Command and Control |
| ATCMD | = | Advanced Transportation Control and Movement Document |
| ATLASS | = | Asset Tracking Logistics And Supply System |
| AUTODIN | = | Automatic Digital Network |

| | | |
|---|---|---|
| C2IPS | = | Command and Control Information Processing System |
| CAASS | = | Command Airlift Aircrew Scheduling System |
| CAIMS | = | Conventional Ammunition Integrated Management System |
| CALS | = | Continuous Acquisition and Life-cycle Support |
| CAMMS | = | Contractor Aviation Material Management System |
| CAMS | = | Consolidated Airlift Maintenance System |
| CAPS | = | Consolidated Aerial Port System |
| CAPS II | = | Consolidated Aerial Port System II |
| CASREP | = | Casualty Report |
| CAV | = | Commercial Asset Visibility |
| CBL | = | Commercial Bill of Lading |
| CCP | = | Container Consolidation Point |
| CCSS | = | Commodity Command Standard System |
| CFM | = | CONUS Freight Management |
| CFS | = | Container Freight Station |
| CIM | = | Corporate Information Management |
| CINC | = | Commander-in-Chief |
| CMARPS | = | Conventional Mating And Ranging Program System |
| CMOS | = | Cargo Movement Operations System |
| COE | = | Common Operating Environment |
| COMNAVSURFLANT | = | Commander Naval Surface Forces Atlantic |
| CONUS | = | Continental United States |
| CRP | = | Central Receiving Point |

| | | |
|---|---|---|
| DAAS | = | Defense Automatic Addressing System |
| DAASC | = | Defense Automatic Addressing System Center |
| DAASINQ | = | DAAS Inquiry System |
| DAISY | = | DRMS Automated Information System |
| DAMES | = | DAASC Automated Message Exchange System |
| DAMMS-R | = | Department of the Army Movement Management System — Redesign |
| DASPS-E | = | Department of the Army Standard Port System — Enhanced |
| DBOF | = | Defense Business Operating Fund |
| DCMC | = | Defense Contract Management Command |
| DCS | = | Deputy Chief of Staff |
| DDMS | = | Defense Depot Maintenance System |
| DDN | = | Defense Data Network |
| DDSC | = | Defense Distribution Systems Center |
| DEPRA | = | Defense Program for Redistribution of Assets |
| DII | = | Defense Information Infrastructure |
| DISA | = | Defense Information Systems Agency |
| DISN | = | Defense Information System Network |
| DLA | = | Defense Logistics Agency |
| DLIS | = | Defense Logistics Information System |
| DLMS | = | Defense Logistics Management System |
| DLMSO | = | Defense Logistics Management Standards Office |
| DLSC | = | Defense Logistics Service Center |
| DLSS | = | Defense Logistics Standard Systems |

| | | |
|---|---|---|
| DMDC | = | Defense Manpower Data Center |
| DMMIS | = | Depot Maintenance Management Information System |
| DMS | = | Depot Maintenance System |
| DNA | = | Defense Nuclear Agency |
| DoD | = | Department of Defense |
| DoDAAC | = | DoD Activity Address Code |
| DODCAV | = | DoD Commercial Asset Visibility |
| DoL | = | Director of Logistics |
| DRIVE | = | Distribution and Repair In a Variable Environment |
| DRMO | = | Defense Reutilization and Marketing Office |
| DRMS | = | Defense Reutilization and Marketing Service |
| DSN | = | Digital Switched Network |
| DSOATS | = | Defense Subsistence Office Automated Transportation System |
| DSS | = | Distribution Standard System |
| DTAV | = | Defense Total Asset Visibility |
| DTMR | = | Defense Traffic Management Regulation |
| DTS | = | Defense Transportation System |
| DTTS | = | Defense Transportation Tracking System |
| DUSD(L) | = | Deputy Under Secretary of Defense (Logistics) |
| DVD | = | Direct-Vendor Delivery |
| DWASP | = | Defense Warehousing and Shipping Procedure |
| EA | = | Executive Agent |
| EC | = | Electronic Commerce |

| | | |
|---|---|---|
| ECD | = | Estimated Completion Date |
| EDI | = | Electronic Data Interchange |
| ETADS | = | Enhanced Transportation Automated Data System |
| EUR-AIT | = | Europe – Automatic Identification Technology |
| FACTS | = | Fleet Automated Control Transportation System |
| FAS | = | Fuels Automated System |
| FFRDC | = | Federally Funded Research and Development Center |
| FIMARS | = | Fleet Inventory Management and Analysis Reporting System |
| FOB | = | Free on board |
| FTP | = | File Transfer Protocol |
| GBL | = | Government Bill of Lading |
| GCCS | = | Global Command and Control System |
| GCSS | = | Global Combat Support System |
| GDMS | = | Global Database Management System |
| GDSS | = | Global Decision Support System |
| GFE | = | Government-Furnished Equipment |
| GFM | = | Government-Furnished Material |
| GPMRC | = | Global Patient Movement Requirements Center |
| GS | = | General Support |
| GSA | = | General Services Administration |
| GTN | = | Global Transportation Network |
| GUI | = | Graphical User Interface |
| HOST | = | Headquarters Online System for Transportation |

| | | |
|---|---|---|
| HQ | = | Headquarters |
| IBS | = | Integrated Booking System |
| IC3 | = | Integrated Command, Control, and Communications System |
| ICP | = | Inventory Control Point |
| ILS | = | Integrated Logistics Support |
| IM | = | Item Manager |
| IMA | = | Intermediate Maintenance Activity |
| IMACS | = | Interservice Material Accounting and Control System |
| IMM | = | Integrated Materiel Manager |
| INMARSAT | = | International Maritime Satellite |
| IPG | = | Issue Priority Group |
| IRIS | = | Interrogation Requirements Information System |
| ISM | = | Integrated Sustainment Maintenance |
| ITO | = | Installation Traffic Office |
| ITV | = | In-Transit Visibility |
| JCALS | = | Joint Continuous Acquisition and Life-Cycle Support |
| JCS | = | Joint Chiefs of Staff |
| JEDMICS | = | Joint Engineering Data Management Information and Control System |
| JLSC | = | Joint Logistics Systems Center |
| JOPES | = | Joint Operational Planning and Execution System |
| JPAV | = | Joint Personnel Asset Visibility |
| JTAV | = | Joint Total Asset Visibility |

| | | |
|---|---|---|
| JTCC | = | Joint Transportation CIM Center |
| JTF | = | Joint Task Force |
| JWID | = | Joint Warrior Interoperability Demonstration |
| LAD | = | Logistics Asset Management |
| LASE | = | Logistics Asset Support Estimate |
| LEAD | = | Low-Cost Encryption and Authentication Device |
| LEO | = | Low Earth Orbital |
| LIF | = | Logistics Intelligence File |
| LINK | = | Logistics Information Network |
| LIPS | = | Logistics Information Processing System |
| LM | = | Logistics Manager |
| LOGAIS | = | Logistics Automated Information System |
| LOGMARS | = | Logistical Applications of Automated Marking and Reading Symbols |
| LOGRUN | = | Logistics Remote Users Network |
| LOGSA | = | Logistics Support Activity |
| MAC | = | Military Airlift Command (predecessor of Air Mobility Command) |
| MACA | = | Military Airlift Clearance Authority |
| MAGTF | = | Marine Air-Ground Task Force |
| MAIRS | = | Military Air Integrated Reporting System |
| MAJCOM | = | Major Command |
| MARC | = | Multitechnology Automated Reader Card |
| MASS | = | MICAP Asset Sourcing System |
| MCLB | = | Marine Corps Logistics Base |

| | | |
|---|---|---|
| MCREM | = | Marine Corps Readiness Equipment Module |
| MEF | = | Marine Expeditionary Force |
| METS II | = | Mechanized Export Traffic System II |
| MICAP | = | Mission Capable |
| MILS | = | Military Standard (e.g., MILSBILLS, MILSTRIP, MILSTRAP, MILSTAMP) |
| MILSBILLS | = | Military Standard Billing System |
| MILSTAMP | = | Military Standard Transportation and Movement Procedures |
| MILSTRAP | = | Military Standard Transaction Reporting and Accounting Procedures |
| MILSTRIP | = | Military Standard Requisition and Issue Procedures |
| MIS | = | Management Information System |
| MITLA | = | Microcircuit Technology in Logistics Applications |
| MMS | = | Materiel Management System |
| MMSS | = | Materiel Management Standard System |
| MP&E | = | Maintenance Planning and Execution |
| MRC/D | = | Materiel Release Confirmation/Denial |
| MRO | = | Materiel Release Order |
| MRP | = | Materiel Returns Program |
| MSL | = | Military Shipping Label |
| MTF | = | Medical Treatment Facility |
| MTMC | = | Military Traffic Management Command |
| MUFFIN | = | Multi-Use File for Interagency News |
| MUMMS | = | Marine Corps Unified Materiel Management System |

| | | |
|---|---|---|
| MVIS | = | Materiel Visibility |
| NADEPVIS | = | Naval Aviation Depot Visibility |
| NATDS | = | Navy Automated Transportation Data System |
| NAVADS | = | Navy Automated (Transportation) Documentation System |
| NAVMASSO | = | Navy Management Systems Support Office |
| NAVREM | = | Navy Readiness Equipment Module |
| NAVSUP | = | Naval Supply Systems Command |
| NAVTAV | = | Navy Total Asset Visibility |
| NDTS | = | National Defense Transportation System |
| NIIN | = | National Item Inventory Number |
| NMCS | = | Not Mission Capable Supply |
| NREM | = | Navy Readiness Equipment Module |
| NSC | = | Naval Supply Center |
| NSN | = | National Stock Number |
| OCONUS | = | Outside the Continental United States |
| OSC | = | Objective Supply Capability |
| OSD | = | Office of the Secretary of Defense |
| PACS | = | Passenger Automated Check-in System |
| PAPS | = | Passenger Automated Planning System |
| PC | = | Personal Computer |
| PCARSS | = | Plant Clearance Automated Reutilization Screening System |
| PCH&T | = | Packing, Crating, Handling, and Transportation |
| PDF | = | Portable Data File |

| | | |
|---|---|---|
| PEO | = | Program Executive Officer |
| PICA | = | Primary Inventory Control Activity |
| PMO | = | Program Management Office |
| POD | = | Port of Debarkation |
| POE | = | Port of Embarkation |
| POL | = | Petroleum, Oils, and Lubricants |
| PRAMS | = | Passenger Reservation and Manifesting System |
| RAMP | = | Reparable Assembly Management Process |
| RBM | = | Readiness Based Maintenance |
| RCAPS | = | Remote Consolidated Aerial Port System |
| RDB | = | Requirements Data Base |
| RD&ES | = | Requirements Determination and Execution System |
| RDO | = | Redistribution Order |
| REMIS | = | Reliability and Maintainability Information System |
| RF | = | Radio Frequency |
| RFI | = | Ready For Issue |
| RFP | = | Request For Proposals |
| RO | = | Requisitioning Objective |
| ROAMS | = | Replacement Operations Automation Management System |
| RPV | = | Reparables Pipeline Visibility |
| RUPS | = | Reserve Unit Priority System |
| SAILS | = | Standard Army Intermediate Level Supply System |
| SAIMD | = | Standard Automated Input Media Device |

| | | |
|---|---|---|
| SALTS | = | Streamlined Automated Logistics Transmission System |
| SAMMS | = | Standard Automated Materiel Management System |
| SAMMSTEL | = | SAMMS Telecommunications Systems |
| SARSS | = | Standard Army Retail Supply System |
| SARSS-O | = | Standard Army Retail Supply System — Objective |
| SBSS | = | Standard Base Supply System |
| SC&D | = | Stock Control and Distribution |
| SCS | = | Stock Control System |
| SDS | = | Standard Depot System |
| SICA | = | Secondary Inventory Control Activity |
| SIMS-X | = | Selected Item Management System — Expanded |
| SNAP | = | Shipboard Nontactical ADP Program |
| SOS | = | Source of Supply |
| SPCC | = | Ships Parts Control Center |
| SPOD | = | Sea Port of Debarkation |
| SPRACCS | = | Second Generation Passenger Automated Check-in System |
| SQL | = | Structured Query Language |
| SSCO | = | Shipper Service Control Office |
| STACCS | = | Standard Theater Army Command and Control System |
| TAFIM | = | Technical Architecture for Information Management |
| TAV | = | Total Asset Visibility |
| TBD | = | To Be Determined |

| | | |
|---|---|---|
| TC ACCIS | = | Transportation Coordinator's Automated Command and Control Information System |
| TC AIMS | = | Transportation Coordinator's Automated Information for Movement System |
| TC AIMS II | = | Transportation Coordinator's Automated Information for Movement System II |
| TCMD | = | Transportation Control and Movement Document |
| TCN | = | Transportation Control Number |
| TCP/IP | = | Transmission Control Protocol/Internet Protocol |
| TDM | = | Theater Distribution Management |
| TDP | = | Total Distribution Program |
| TDR | = | Transportation Discrepancy Report |
| TERMS | = | Terminal Management System |
| TFREM | = | Total Force Readiness Equipment Module |
| TIR | = | Transaction Item Report |
| TMS | = | Transportation Management System |
| TPMRC | = | Theater Patient Movement Requirements Center |
| TRAC2ES | = | TRANSCOM's Regulating and Command and Control Evacuation System |
| TRAIN II | = | TeleRail Automated Information Network II |
| TRAIS | = | Transportation Reporting And Inquiry System |
| TRAMS | = | Transportation Automated Management System |
| TSM | = | Terminal Support Module |
| UADPS | = | Uniform Automated Data Processing System |
| UIC | = | Unit Identification Code |
| UICP | = | Uniform Inventory Control Point |

| | | |
|---|---|---|
| ULN | = | Unit Line Number |
| UMMIPS | = | Uniform Materiel Movement and Issue Priority System |
| USAF | = | United States Air Force |
| USMC | = | United States Marine Corps |
| USPS | = | United States Postal Service |
| USTRANSCOM | = | United States Transportation Command |
| VMSIR | = | Virtual Master Stock Item Record |
| WPS | = | Worldwide Port System |
| WR-ALC | = | Warner Robins Air Logistics Center |

APPENDIX C

# Current Capabilities and Ongoing Initiatives

This appendix describes several major Department of Defense (DoD) initiatives aimed at improving the ability of operational and logistics managers to identify and act on information about the location, quantity, condition, movement, and status of materiel assets. These initiatives are representative of various total asset visibility (TAV) -related initiatives that the TAV Joint Task Force considered in developing the operating concepts proposed in this plan.

## ADVANCED TRACEABILITY AND CONTROL PLUS

The Advanced Traceability and Control (ATAC) Plus initiative was designed to provide accountability, control, and visibility of assets in-process. It consists of four separate initiatives: ATAC; Reparables Pipeline Visibility (RPV); Ready For Issue (RFI)/Redistribution Order (RDO); and RFI Issues. In March 1994, RPV was changed to ATAC-Air Force. The Joint Logistics Systems Center (JLSC) is investigating the feasibility of ATAC-Air Force serving as a migration system, but it has not made a decision. ATAC Plus is not being considered for a migration system at this time.

The point of contact for ATAC Plus is Mr. Dave Estep, Naval Supply Systems Command (NAVSUP) Code 4112, (703) 607-0262, Digital Switched Network (DSN): 327-0262.

## ATAC — AIR FORCE

Advanced Traceability and Control – Air Force (ATAC-AF) is a pipeline management analysis tool that provides various supply, maintenance, and transportation performance data for serviceable, reparable, and consumable assets. Phase I of ATAC-AF focused on the reparable portion of the logistics pipeline, while Phase II addressed serviceables. Phase III will focus on bad-actor tracking (serial number tracking throughout the pipeline); consumable asset tracking; engine tracking; and any remaining functionality not achieved during Phase 2.

The point of contact for ATAC-AF is Headquarters (HQ) Air Force Materiel Command (AFMC)/LGIR, (513) 257-5243, DSN: 787-5243.

# Army Total Asset Visibility

The Army Total Asset Visibility (ATAV) system is an information gateway and data repository that provides visibility on more than 300,000 line items from all supply classes to more than 3,700 users. It receives data from Army retail systems down to the supply support activities within divisions and is connected to all Army inventory control points (ICPs), to the Army's Logistics Intelligence File (LIF), and to the Global Transportation Network (GTN). The Army is now striving to link ATAV to the Defense Logistics Agency's (DLA's) ICPs, which would provide ATAV with additional procurement data.

The point of contact for ATAV is Mr. Tim Yeager, U.S. Army Logistics Integration Agency, (703) 274-4494, DSN: 284-4494.

# Automated Manifest System

The Automated Manifest System (AMS) is an electronic manifesting system that provides line-item visibility of container contents. AMS uses a compact optical memory card as the data storage media to provide detailed transportation and line-item visibility on the contents of each multipack and container (van or air pallet). When AMS is used in conjunction with radio frequency tags, it supports in-box visibility of containers in-transit via remote interrogation. The card, which accompanies the container or multipack to the final destination, provides a useful source of information on the contents of the container or multipack; it also supports an update of a microcomputer data base and provides an immediate search and retrieval capability for high-priority items. When fully implemented, it will include all classes of items that originate at DLA distribution depots.

AMS can expedite receipt processing and discrepancy reporting, and enhance the processing of containers in overseas theaters. It creates issue and packing lists, expedites bulk receipt confirmations, interfaces with Military Service retail supply systems, provides visibility of assets in the logistics pipeline, and gives the receiver automated reconciliation and verification of receipts and discrepancy reports.

Used extensively during the deployments to Somalia and Haiti in 1993 and 1994, AMS enhanced productivity in the theater significantly. Phase I, which has been completed, established interfaces to several Army systems and linked information on radio frequency tags to AMS line-item information. Phase II, which is ongoing, will establish interfaces with DLA depots and provide field-deployable and port of embarkation and debarkation capabilities.

The Army and DLA are jointly working on this initiative, which started in October 1993.

The point of contact for AMS is Ms. Lucy Capaldi, HQ DLA/MMDTT, (703) 767-6552, DSN: 427-6552.

## Cargo Movement Operations System

The Cargo Movement Operations System (CMOS) gives Air Force Active, Reserve, and Air National Guard bases the capability to support the movement of cargo and passengers. Integrated with base-level supply, munitions, and deployment planning systems, CMOS receives movement requirements and provides in-check and status information electronically. By eliminating manual processes, CMOS greatly enhances the data quality and timeliness of status reporting to the Logistics Information Processing System (LIPS) and destination supply account. It pre-positions movement data electronically at the destination and with GTN for in-transit visibility (ITV). It also produces military shipping labels with standard 3-of-9 linear bar codes, which supports automated in-check and processing at all transportation nodes (depots, air and water ports, and container consolidation points).

The point of contact for CMOS is Major Bill Hearne, HQ United States Air Force (USAF)/LGTR, (703) 697-7332, DSN: 227-7332.

## Commercial Asset Visibility

The Navy's Ships Parts Control Center (SPCC) developed Commercial Asset Visibility (CAV) in 1984 to improve visibility and control over reparable material at commercial repair facilities. Although CAV improved visibility, its support of financial records was inadequate. To enhance financial accountability and improve visibility of commercially repaired material, SPCC implemented a redesign in 1988 — CAV II. That system is now used at more than 80 repair facilities accounting for about $200 million, or 80 percent of SPCC's total commercial repair expenditures. In 1992, a letter of agreement was signed between the Naval Supply Systems Command, SPCC, and Aviation Supply Office (ASO) designating CAV II as the Navy's commercial asset tracking system. That agreement also laid a foundation for the redesign of CAV II to incorporate many of the features of ASO's commercial tracking system — Contractor Aviation Material Management System (CAMMS) II.

Also in 1992, the JLSC selected CAV II to be the platform for DoD Commercial Asset Visibility (DOD-CAV) reporting. The purpose of DOD-CAV is to provide item managers with the tools necessary to maintain complete accountability and visibility of assets either being repair or supporting the repair cycle at the contractor's site. CAV II will be integrated with the Stock Control System (SCS). CAV II will provide capability for two-way reporting between ICPs and commercial repair facilities. It will also provide the capability for a range of repair support functions, such as serialized tracking of the repair item from receipt through shipment or condemnation (including any awaiting parts delays);

requisitioning, receipt, and return or consumption of government-furnished material; receipt and return of government-furnished equipment; daily transmission of all transaction information to and from item managers; transmission of requisitions and their status, follow-up, and modifier data in military standards formats; visibility of suspended material, including reports of discrepancy and beyond economical repair candidates and rejected transactions; and report generation.

The points of contact for CAV II are

- Ms. Mary Conner, Navy Fleet Material Support Office, (717) 790-6530, DSN: 430-6530
- Mr. Bob Bacon, NAVSUP Code 4113D, (703) 607-0261, DSN: 327-0261.

## DAASC Automated Message Exchange System

The Defense Automatic Addressing System Center (DAASC) Automated Message Exchange System (DAMES) is a communications capability that gives remote, mobile, and detached activities the ability to transmit narrative and data pattern messages via a telephone model link. Data encryption is provided through Low-cost Encryption and Authentication Devices (LEADs) technology. DAMES is currently being reengineered to use a Windows-based Graphical User Interface. Its telecommunications capabilities will soon be enhanced to use International Maritime Satellite (INMARSAT), commercial satellite, military satellite, cellular telephone and Internet and Defense Data Network (DDN) connectivity. It will also use enhanced data encryption technology and data compression.

The point of contact for DAMES is Mr. Karl Ralston, DAAS-D, DAASC (DLA), (513) 296-5681, extension 201, DSN: 986-5681, extension 201.

## Defense Program for Redistribution of Assets

The Defense Program for Redistribution of Assets, or DEPRA, is a central system for screening and redistributing DoD assets above the requisitioning objective. It focuses on maximizing the use of available assets, precludes the concurrent procurement and disposal of identical items by Military Service supply systems, and reduces the expenditures of transportation funds for shipping items long distances to activities when similar items are available within the same geographical area.

DEPRA, which is currently operational, directs approximately $8 million of lateral redistributions per month. In the near future, DEPRA will be used to redistribute assets associated with the Plant Closing Automated Redistribution System.

The point of contact for DEPRA is Mr. Karl Ralston, DAAS-D, DAASC (DLA), (513) 296-6341, extension 201, DSN: 986-6341, extension 201.

## Distribution and Repair In a Variable Environment

The Distribution and Repair in a Variable Environment (DRIVE) is an Air Force initiative that prioritizes depot repair and distribution actions to maximize the probability that base aircraft availability goals are met. It is designed to prioritize depot repair actions and distribution of serviceable assets (from stock, repair, buy, or contract sources) for reparable assets.

The point of contact for DRIVE is Ms. Flannery, HQ AFMC/LGIR, (513) 257-5243, DSN: 787-5243.

## DLA Enhanced Vendor Delivery Program

DLA's ICPs will soon adopt a new procurement policy — to primarily use free-on-board (FOB) origin contracts. A third-party logistics manager (LM) will support DLA by procuring carrier transportation for the movement of DLA vendor-produced materiel and providing visibility and control of that materiel in shipment. The LM will also provide electronic data interface with government systems and ITV on a real-time basis.

The point of contact for this program is Mr. Ed Coyle, DLA/MMDT, (703) 767-3640, DSN: 427-3640.

## Fleet Automated Control Transportation System Afloat

The Fleet Automated Control Transportation System (FACTS) uses personal computers, laser printers, and bar-code scanners to monitor the status of shipments of depot-level reparable materiel from ships. The main feature of this initiative is its use of bar codes to identify and track reparable assets.

FACTS consists of two modules, retrograde and shipping, that produce bar-coded documentation. It also provides standard, electronic data interchange (EDI) -compliant military standard transactions that can input to any in-transit data system. A successful prototype of FACTS was completed in September 1993 aboard the *USS George Washington*. FACTS is scheduled to be implemented in 30 ships per year. The Navy Management Systems Support Office is the central design agency for FACTS.

The point of contact for FACTS is NAVSUP Code 41212B, (703) 607-0838, DSN: 327-0838.

## Fleet Inventory Management and Analysis Reporting System

The Fleet Inventory Management and Analysis Reporting System (FIMARS) is a Navy initiative to provide visibility of secondary item assets onboard ships. Developed by the Commander, Naval Surface Forces Atlantic (COMNAVSURFLANT), FIMARS aggregates inventory data collected biweekly from the Shipboard Nontactical Automated Data Processing Systems, which are used for supply management afloat. FIMARS runs on a Pentium-based personal computer and receives data from more than 75 ships via the Streamlined Automated Logistics Transmission System. It facilitates lateral support between ships, as well as type commander analysis of shipboard inventories.

The point of contact for FIMARS is LCDR Page, COMNAVSURFLANT, Code N412E, (804) 444-5186, DSN: 564-5816.

## Future Europe — Automatic Identification Technology

The Future Europe — Automatic Identification Technology (EUR-AIT) initiative is designed to use automatic identification technology (AIT) to demonstrate source data automation capabilities, enhance visibility of container and pallet contents, and enhance ITV by providing source data to various operating systems through the logistics pipeline. AIT assists rapid receipt processing and provides content data when access to automated ITV data is not available due to communications or operational location. Eventually, the initiative will apply to Class IV, V, and IX items; unit equipment; and other classes of supply as applicable. Development of the Red River prototype was begun in November 1992.

The point of contact for Future EUR-AIT is U.S. Army Logistics Integration Agency, (703) 274-4495, DSN: 284-4495.

## Global Transportation Network

GTN will provide ITV of all materiel and personnel moving throughout the Defense Transportation System. It will provide automated functions and a computer and communications infrastructure to support users in planning, directing, and monitoring the global, intermodal, origin-to-port-of-debarkation transportation process.

GTN, which will receive data from selected automated information systems, will cross-reference all classes of supply, forces, passengers, and patient requirements and monitor schedules and movement of airlift, air refueling, aeromedical lift, and surface lift. The Defense Automatic Addressing System (DAAS) will provide GTN with data on requisition status, shipments, consolidations, and receipts. The data base will also contain information from commercial vendors for goods and equipment resulting from purchase orders and data from ports and ultimate consignees that will improve control over payments.

The point of contact for GTN is Col Thomas L. Lutterbie, USAF, HQ United States Transportation Command (TCGT), (618) 256-2866, DSN: 576-2866.

## Integrated Sustainment Maintenance

The Integrated Sustainment Maintenance (ISM) initiative focuses on central management and workloading of all sustainment maintenance activities in the Army and places them under a single manager — Army Materiel Command. These activities include active and reserve component general-support units, installation Director of Logistics operations, Army maintenance depots, and Defense contractors that perform maintenance on weapons systems or components.

With ISM, the Army will be able to make better use of its total maintenance capability, primarily through an integrated management process. Formal tasking for this initiative was received in 1990, and formal acceptance, doctrine, and organizational changes are planned for completion in 1995. Contractor support is being used for proof-of-principle test development, technical support, test and evaluation, integration support, and cost-benefit analysis.

The point of contact for ISM is U.S. Army Logistics Integration Agency, (703) 274-4496, DSN: 284-4496.

## Interrogation Requirements Information System

The Interrogation Requirements Information System (IRIS) provides users with visibility of assets held by the Defense Reutilization and Marketing Service (DRMS). It is a inquiry-based system that uses national stock numbers and provides visibility of assets in any Defense Reutilization and Marketing Office (DRMO) worldwide. Upgrades to IRIS are in process that will allow inquiries by the manufacturer's part number and Federal Supply Class. Military Standard Requisition and Issue Procedures (MILSTRIP) requisitioning within the same interrogation session will also be possible in the near future. IRIS will soon be linked to the cataloging system at Defense Logistics Service Center (DLSC), which will provide access to more descriptive information on specific items. Connections to IRIS can be made via DDN, Automatic Digital Network

(AUTODIN), or with a modem. Access to IRIS through the Internet is being explored. More than 6,000 terminals in DoD can access IRIS.

The point of contact for IRIS is Mr. Mark Vincent, Defense Reutilization and Marketing Service (DRMS) SOR, (616) 961-4751, DSN: 932-4751.

## ITV Enhancement of the Marine Air-Ground Task Force Logistics Automated Information System

Enhancements to the Marine Air-Ground Task Force (MAGTF) Logistics Automated Information System (AIS) family of systems will support Marine transportation and mobility operations that contribute to joint development and sustainment. These enhancements will result in a more efficient way of developing, executing, and communicating deployment and sustainment information to provide ITV to the combatant commanders and other users.

Three primary operational systems — Transportation Coordinator's Automated Information for Movement System (TC AIMS), MAGTF Deployment Support System II, and Computer-Aided Embarkation Management System — will work together in the execution environment to provide ITV and interfaces with planning and transportation systems. TC AIMS II is the selected migratory system that will integrate capabilities extracted from the MAGTF Deployment Support System II and the Computer-Aided Embarkation Management System.

The point of contact for this system is S. Finke, HQ U.S. Marine Corps (USMC) (Code LPS-1), (703) 696-0892, DSN: 226-0892.

## Logistics Asset Support Estimate

Wholesale balance inquires can be made by a broad range of customers with the Logistics Asset Support Estimate (LASE). MILSTRIP inquiries and responses are routed by DAASC to and from the appropriate integrated materiel manager (IMM).

The points of contact for LASE are

- Ms. Darlene DeAngelo, HQ DLA/MMSL, (703) 767-1608, DSN: 427-1608
- Ms. Mary Jane Hefner, Defense Logistics Management Standards Office (DLMSO), (703) 767-6123, DSN: 427-6123.

# LOGISTICS INFORMATION NETWORK

The Logistics Information Network (LINK) system provides access to numerous TAV and TAV-related data bases for query capability using electronic mail. Queries allow for visibility of materiel in-transit, in-process, and in-storage for users in both CONUS and outside CONUS in a client-server mode of operation. The user is required to have only a LINK account to query any data base with which LINK has connectivity. Current connectivity includes access to Air Force LIF, Army LIF, ATAV, DAAS Inquiry System (DAASINQ), IRIS, LIPS, Logistics Remote Users Network (LOGRUN), Multi-Use File for Interagency News (MUFFIN), Standard Automated Materiel Management System (SAMMS) Telecommunications (SAMMSTEL), Snapshot, Terminal Management System (TERMS), and Virtual Master Stock Item Record (VMSIR). Requirements are continually surveyed to include additional data bases and query capability for the users of LINK. ATAC-AF and Worldwide Port System data base connectivity will be added in the near future.

Started in 1991, LINK currently operates client systems in Europe and the Pacific with the server system operated by DAASC in Dayton, Ohio. PC-LINK is being developed to allow client software to reside on a personal computer (PC) with responses written directly to a file on the PC in real time where the data base capability exists. (Systems not capable of supporting real-time queries would still return responses by electronic mail.)

The point of contact for LINK is Mr. Karl Ralston, DAAS-D, DAASC, (513) 296-6341, extension 201, DSN: 986-6341, extension 201.

# LOGISTICS INFORMATION PROCESSING SYSTEM

LIPS is a relational data base containing supply-related information extracted from logistics transactions as they flow through DAAS. Using the power of structured query language, information can be readily and easily extracted to obtain supply-related information on materiel as it flows through the logistics pipeline. Some in-process data is available, and some in-transit data is available. When data are shared with GTN, more in-transit data will be available for users of LIPS.

LIPS is the final module of the DAAS Modernization Program, which was started in 1982. It was approved by the Major Automated Information System Review Council in July 1994. Visual-LIPS was developed in October 1994 to enhance the capabilities of users to query the LIPS data base by DoD Activity Address Code (DoDAAC), document number, or national item inventory number (NIIN). In December 1994, its software was updated to capture the requirements for logistics response time reporting. In early 1995, Visual-LIPS was enhanced to allow for canned ad-hoc query capability on a limited basis.

The population of the LIPS data base continues to increase. It will soon contain the complete life cycle of a document number through closure plus 60 days. The history of logistics transactions will be archived on-line for two years and off-line for the duration of the optical storage media, which is projected at 10 years.

The point of contact for LIPS is Mr. Karl Ralston, DAASC-D (DLA), (513) 296-5681, extension 201, DSN: 986-5681, extension 201.

## MICAP [Mission Capable] Asset Sourcing System

The MICAP [Mission Capable] Asset Sourcing System (MASS) is a personal computer-based system connecting the supply departments of more than 400 Air Force, Air Force Reserve, and Air National Guard bases worldwide. The purpose of MASS is to identify base-level assets needed to fill high-priority requirements and to effect the transfer of these assets. The hub of the system is located at Gunter Annex, Maxwell Air Force Base, Ala. Users specify an national stock number, and the system uses the Air Force Stock Number User Directory to identify all bases that carry the desired item. It then queries each of the appropriate supply departments and returns the results to the user. MASS has been used for seven years and is currently undergoing upgrades to provide a graphical user interface.

The point of contact for MASS is MSgt S. H. Bratcher, Air Force Standard Systems Group (SSG/LGS), (334) 416-5513, DSN: 596-5513.

## Navy Total Asset Visibility

The Navy Total Asset Visibility (NAVTAV) initiative will provide asset visibility of the Navy's inventories to reduce and control excess materiel. Focusing principally on retail materiel, it will also have visibility of wholesale materiel. Several inventory communities fit under the NAVTAV umbrella that links VMSIR stock points, shipyards, ordnance stations, Navy depots, and Fleet type commanders.

The point of contact for NAVTAV is Mr. John Gordon, NAVSUP Code 4113, (703) 607-0807, DSN: 327-0807.

## Objective Supply Capability

The Objective Supply Capability (OSC) will provide the improved communications and advanced automation techniques needed to place orders on the source of supply (SOS) the same day those orders are produced by the customer.

It will provide visibility of all assets that are available within a specified geographical area. OSC is designed to operate in a garrison environment and will include Supply Classes II; III (packaged petroleum, oils, and lubricants); IV; VII; IX; and reparables at the retail level only. OSC interfaces with the wholesale level through DAAS. The project is expected to be completed by 1996.

The point of contact for OSC is Mr. Stan Polonsky, Program Executive Officer (PEO) Standard Army Management Information System (MIS), (804) 734-0478, DSN: 687-0478.

## Primary Inventory Control Activities and Secondary Inventory Control Activities Redistribution

An initiative is underway to share wholesale information between Primary Inventory Control Activities (PICAs) and Secondary Inventory Control Activities (SICAs) for reparable materiel. It will link the ICPs of the Navy, Air Force, and Marine Corps. Inquiries to the Navy will be made through the VMSIR system, while Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP) transactions will be used to access Air Force and Marine Corps data.

The points of contact are

- Mr. John Gordon, NAVSUP Code 4113, (703) 607-0807, DSN: 327-0807
- Mr. Brad Smith, HQ AFMC/LGIC, (513) 257-7982/7698, DSN: 787-7982/7698
- Maj Brad Pangle, HQ USMC (LPP-2), (703) 696-1051, DSN: 226-1051.

## Plant Clearance Automated Reutilization Screening System

The Plant Clearance Automated Reutilization Screening System (PCARSS) will make stock-numbered contractor inventory that is excess available for redistribution through the Material Returns Program (MRP). The objective of PCARSS is to dispose of excess government property that is no longer required by contractors and to ensure that contract inventory is disposed of in a manner that permits maximum reutilization of serviceable property.

The PCARSS contract was awarded in September 1994. Concept development was forecasted to be complete in mid-1995 with initial operational capability completed in December 1995.

The point of contact for PCARSS is Ms. Janice Hawk, DLA/AQCOE, (703) 767-3433, DSN: 427-3433.

## Production Base Information System/TAV Integration

The Production Base Information System/TAV Integration initiative will incorporate data on all parts, components, and assemblies (including ammunition) that can be linked to a weapons system application. It will use information on retail, wholesale, and in-transit assets from the DLA, Army, Air Force, and Navy. This initiative resulted from the requirement in 1992 amendments to the Defense Production Act that DoD develop an information system capable of analyzing the industrial base at a lower level of indenture and provide a capability for identifying diminishing manufacturing sources and critical foreign dependencies.

The project was initiated in September 1993, and the proof of principle was completed in December 1993, using the Apache helicopter as the benchmark.

The point of contact is Mr. Jim E. Willoughby, Office of the Assistant Secretary of Defense (Economic Security), (703) 756-2310, DSN: 284-4496.

## Readiness Based Maintenance

The Readiness Based Maintenance (RBM) is a decision support system that will set priorities for the Army's Class IX repair, buy, and distribution decisions to maximize the probability of meeting weapons system availability objectives. It will provide a tool that links weapons system management and uncertainty to optimize decisions within multiple constraints, such as available dollars and repair resources.

This initiative began in 1990 at the ICP level and is now being expanded to include division, installation, corps, and regional levels.

The point of contact for RBM is Ms. Butler, U.S. Army Logistics Integration Agency, (703) 274-4496, DSN: 284-4496.

## Reparable Assembly Management Process

The Reparable Assembly Management Process (RAMP) system, also known as the D035C system, is a process that provides Air Force ICPs with visibility of assets, requirements, demand history, and other historical information for non-consumable items. It uses data from both bases and depot maintenance activities as changes occur. ICPs use RAMP data to compare assets and requirements

to determine when assets should be repositioned. RAMP provides ITV and generates automatic follow-ups when receipts have not been acknowledged within prescribed timeframes. It calculates and provides order and shipping times to the wholesale requirements system on a quarterly basis. ICPs also use RAMP data when computing Air Force-wide requirements for nonconsumable items.

The points of contact for RAMP are Mr. Brad Smith and Mr. Dan Ipson, HQ AFMC/LGIC, (513) 257-7982, DSN: 787-7982.

## Standard Automated Materiel Management System/Army TAV Interface

The Standard Automated Materiel Management System (SAMMS)/Army TAV initiative will provide visibility of Army-owned, DLA-managed retail assets to support DLA backorders resulting from Military Service requisitions and to offset DLA procurements with available retail assets. It will include Army retail assets with Army Materiel Command Installation Supply System (AMCISS), Standard Army Intermediate Level Supply System (SAILS), and Standard Army Retail Supply System (SARSS) activities, focusing on Class II, VIII, and IX items. DLA will be allowed to fill requisitions and backorders from those assets on a reimbursable basis, as well as to offset procurements. SAMMS is the DLA wholesale inventory management system.

The points of contact at HQ DLA/MMSLR for this interface are

- Mr. Robert Vitko, (703) 767-1601, DSN: 427-1601
- Ms. Brenda Meadows, (703) 767-1606, DSN: 427-1606.

## SAMMS/Standard Base Supply System Interface

The SAMMS/Standard Base Supply System (SBSS) interface will provide visibility of Air Force-owned, DLA-managed retail assets to support DLA backorders resulting from Military Service requisitions and to offset DLA procurements with available retail assets. It will include Air Force retail assets at most bases, focusing on Class II, VIII, and IX items. DLA will be allowed to fill requisitions and backorders from those assets on a reimbursable basis, as well as to offset procurements.

SBSS is the Air Force's inventory management system for its bases, and SAMMS is the DLA wholesale inventory management system.

The points of contact at HQ DLA/MMSLR for this interface are

- Mr. Robert Vitko, (703) 767-1601, DSN: 427-1601
- Ms. Brenda Meadows, (703) 767-1606, DSN: 427-1606.

# SAMMS/VMSIR Interface

VMSIR is the Navy system that allows stock points to display their non-Navy-managed items to other stock points and ICPs, as well as to a growing number of industrial activities. SAMMS is the DLA wholesale inventory management system.

The SAMMS/VMSIR initiative will provide visibility of Navy-owned, DLA-managed retail assets to support DLA backorders resulting from Military Service requisitions and to offset DLA procurements with available retail assets. It will include Navy retail assets at VMSIR activities, focusing on Class II, VIII, and IX items. DLA will be permitted to fill requisitions and backorders from those assets on a reimbursable basis, as well as to offset procurements.

This initiative will be a proof of principle. It will also be a test of how financial billings and reimbursements will occur between DoD Components.

The points of contact for this interface are

- at HQ DLA/MMSLR
  - Mr. Robert Vitko, (703) 767-1601, DSN: 427-1601
  - Ms. Brenda Meadows, (703) 767-1606, DSN: 427-1606
- Mr. John Gordon, NAVSUP Code 4113, (703) 607-0807, DSN: 327-0807.

# SAMMSTEL Access

DLA provides approved users with read-only interactive access to its ICP inventory records via SAMMSTEL. Asset information, requisition status, and other data from the inventory manager's record are available from DLA through SAMMSTEL. DLA ICPs can connect to SAMMSTEL through DDN, dialup lines, or the Internet. DLA Handbook 4745.2 provides additional information.

The point of contact for SAMMSTEL is Ms. Nancy West, DLA Systems Design Center, DSDC-R, (614) 692-9968, DSN: 850-9968.

# Streamlined Automated Logistics Transmission System

The Streamlined Automated Logistics Transmission System (SALTS) is a communications system that transmits asset and requisition data through the INMARSAT system. Data files are sent to SALTS Central by commercial satellite, military satellite, or telephone. It then accumulates, compresses, addresses, encrypts, and transmits the data to the receiver.

SALTS currently aids in accessing logistics data bases and reporting maintenance, reparable carcass management, hazardous materiel, and payroll and personnel information. In addition to supporting TAV and ATAC Plus initiatives, future SALTS services may include ammunition reporting and Internet and DDN connectivity. SALTS is also becoming the communications medium of choice in expeditionary force and disaster relief operations.

The point of contact for SALTS is the Naval Aviation Supply Office, (215) 697-3645, DSN: 442-3645.

# Support of DoD TAV Program

The support of DoD TAV program will provide connectivity between critical data elements commonly used throughout the DoD logistics community. DLMSO has completed the following milestones: it has developed a standard order identifier; it has determined X12 requirements, developed procedures, and promulgated new EDI transactions for both supply and transportation; it has developed procedural and transaction changes in support of LASE; and it has developed procedures for a PICA-SICA interface. It has also developed Approved MILSTAMP Change Letter (AMCL) 28, which will establish a standard transaction that ties the supply document to the shipment unit transportation control number (TCN) and eventually to the container or pallet TCN for shipment units consolidated at the depot, consolidated containerization point (CCP), or port of embarkation (POE).

In addition, MILSTRIP Interim Change 94-2, MILSTRAP Interim Change 94-1, and MILSBILLS Interim Change 94-1 allow IMMs to obtain visibility of retail-owned assets and use offered materiel to fill backorders; perform billing and reimbursement functions; pay for materiel and packing, crating, handling, and transportation; and use intra-Service asset visibility systems to fill inter-Service backorders. These changes were effective June 1994.

The point of contact for this initiative is DLMSO, (703) 767-6153, DSN: 427-6153.

# TOTAL DISTRIBUTION PROGRAM/AIT

The Army Total Distribution Program (TDP) is designed to ensure the efficient and effective distribution of equipment, materiel, personnel, and mail to theater Commanders-in-Chief. TAV and ITV are integral to the TDP. This program focuses on the source automated operating systems, which may produce TAV and ITV data as a by-product; an assured communications network for passing TAV and ITV data; the use of source data automation and AIT, including bar codes, contact memory devices, and radio frequency transponders, as input to devices to operating systems and provide a TAV and ITV capability when an automated system is not present or accessible; and supporting GTN. TDP supports all classes of supply and movements of unit equipment.

The point of contact for TDP is the U.S. Army Logistics Integration Agency, (703) 274-4495, DSN: 284-4495.

# TOTAL FORCE READINESS EQUIPMENT MODULE

The Total Force Readiness Equipment Module (TFREM) provides worldwide visibility of current equipment levels, condition, and location for units in all Military Services. It accesses existing Military Service equipment data bases using a PC. It is designed to answer questions with limited information available by the noncomputer expert and is a DoD standard tool that allows the Military Services to tailor their applications using off-the-shelf software.

TFREM is the umbrella name for the following Military Service modules: Marine Corps Readiness Equipment Module (MCREM); Army Readiness Equipment Module (AREM); Air Force Readiness Equipment Module (AFREM); and Navy Readiness Equipment Module (NREM). TFREM was formerly known as the Reserve Unit Priority System (RUPS), but it now includes active units.

MCREM is being used worldwide and has been used to prepare for contingencies since Somalia. AREM has been delivered and its use is expanding beyond the Army Deputy Chief of Staff for Logistics staff. AFREM is being tested at the Air Combat Command, and NAVREM is in development and gathering more equipment data sources. Current plans call for a projection capability to be added.

The point of contact for TFREM is the Office of the Deputy Assistant Secretary of Defense/Reserve Affairs (Materiel and Facilities) [ODASD/RA(M&F)], (703) 695-1677, DSN: 225-1677.

## TRANSPORTATION AUTOMATED MANAGEMENT SYSTEM

The Transportation Automated Management System (TRAMS) is being developed to automate 90 percent of the transportation documents prepared by Defense Contract Management Command (DCMC) activities and contractors to ship government-owned materiel on contracts administered by DCMC. TRAMS processes shipment data and operates on a two-tier system architecture design.

Functions performed on microcomputers include entering and validating shipment requests; awarding shipments to carriers with reason codes for not selecting the low-cost carrier; recording of service failures; creating government bills of lading (GBL) and correction notices; printing of shipping documents; transmitting GBL data; creating Transportation Discrepancy Reports; producing management reports; and applying local nonuse carrier penalties. Functions performed on host minicomputers include entering carrier tenders, rating and ranking, maintaining mileages, and producing management reports.

The next version of TRAMS will feature an interface with the Military Traffic Management Command's CONUS Freight Management (CFM) system.

The point of contact for TRAMS is Mr. Paul R. Kretzing, HQ DLA/MMATS, (703) 767-3635, DSN: 427-3635.

## TRANSPORTATION CONTROL NUMBER CARRIER TRACKING

TCN was designated the single standard shipment identification number by the Office of the Secretary of Defense in August 1992. The TCN is used as the common identifier in supply (shipment status) and transportation shipment transactions to facilitate visibility requirements. As a result, a number of small parcel and less-than-truckload carriers have begun offering TCN tracking and reporting services. This initiative needs to be expanded to include all modes and carriers.

The point of contact for TCN carrier tracking is Mr. Ed Coyle, DLA/MMDT, (703) 767-3640, DSN: 427-3640.

## VMSIR/ATAV INTERFACE

The VMSIR/ATAV interface will be a proof of principle that can be expanded to other DoD Components. This initiative will provide reciprocal visibility of Army and Navy retail items. VMSIR will provide asset visibility using the ATAV graphical user interface. A redistribution capability through VMSIR is planned to be added in Phase 2. RPV will provide ITV, while CAV will provide in-process visibility.

The point of contact for this interface is Mr. John Gordon, NAVSUP Code 4113, (703) 607-0807, DSN: 327-0807.

# APPENDIX D

# Milestones

This appendix summarizes the major actions required to implement the *Defense Total Asset Visibility Implementation Plan*. It identifies the lead and supporting organizations, and the target dates for completing the actions. Table D-1 is oriented to overall program management and Tables D-2 through D-7 are related to the functional areas addressed in Chapters 3 through 8. Table D-8 lists milestones required by multiple functional areas.

**Table D-1.**
***Program Management Milestones***

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| PM01 | Identify TAV priorities and provide milestone schedules for TAV implementation. | Joint DTAV Office/ Components | Dec 95 |
| PM02 | Conduct economic analyses in concert with functional and technical architectural development. | Joint DTAV Office/JLSC, USTRANSCOM, DAASC, Components | Apr 96 |
| PM03 | Develop, implement, and coordinate with users detailed functional requirements for TAV, including<br>• information required, by data element;<br>• response time requirements; and<br>• formats for queries and reports. | Joint DTAV Office/JLSC, DLMSO, DAASC, Components | Jan 96 |
| PM04 | Refine the architecture for linking AISs to share asset information among DoD Components and TAV users. | Joint DTAV Office/ Components, JLSC, USTRANSCOM | Jun 96 |
| PM05 | Implement changes to operational concepts that permit use of existing and emerging technologies and systems leading to an integrated TAV capability. | Joint DTAV Office/ Components | Ongoing |
| PM06 | Program and budget for TAV prototypes and demonstrations; allocate resources to support the TAV initiative. | Joint DTAV Office, Components | Ongoing |
| PM07 | Prepare Program Objective Memoranda supporting OSD-funded TAV initiatives. | Joint DTAV Office | Annual (May) |
| PM08 | Conduct in-process reviews with the DTAV Council on TAV progress. | Joint DTAV Office | Quarterly |

***Note:*** DTAV = Defense Total Asset Visibility; JLSC = Joint Logistics Systems Center; USTRANSCOM = United States Transportation Command; DAASC = Defense Automatic Addressing System Center; DLMSO = Defense Logistics Management Standards Office; AISs = automated information systems; OSD = Office of the Secretary of Defense.

**Table D-2.**
*Milestones to Achieve Requisition Tracking Capability*

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| RT01 | Publish policy and implement procedures to require receiving activities to provide comprehensive receipt information, via DAAS, to IMMs. | DUSD(L)/Components, DAASC, DLMSO | Dec 95 |
| RT02 | Review, and revise as required, Military Service and Defense agency procedures to ensure that all requisitions submitted to IMMs, and transactions related to those requisitions, are either routed through DAAS or images are provided to DAAS for inclusion in LIPS. | DAASC/Components, JLSC, DLMSO | Completed |
| RT03 | Ensure the planned interface between DAAS/LOTS and GTN satisfies the customer's requirements for a single point of entry for requisition status. | USTRANSCOM and DAASC | Dec 96 |
| RT04 | Improve MILS status reporting process. | JLSC/Components | Apr 96 |

***Note:*** DAAS = Defense Automatic Addressing System; IMMs = integrated materiel managers; DUSD(L) = Deputy Under Secretary of Defense (Logistics); LIPS = Logistics Information Processing System; GTN = Global Transportation Network; MILS = Military Standard.

**Table D-3.**
*Milestones to Achieve Visibility of Assets In-Storage or In-Process*

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| *Common milestones for assets in-storage or in-process* | | | |
| MA01 | Ensure the functional requirements for MMS and AMSS fully support the TAV operating concept. | JLSC/Joint DTAV Office | Dec 95 |
| MA02 | Analyze options available to IMMs to fill requisitions; publish associated business rules. | DUSD(L)/Components | Dec 95 |
| MA03 | Develop standard transactions and file formats for reporting asset balances and requirements. | Joint DTAV Office/ JLSC, DLMSO, DAASC, Components | Jan 96 |
| MA04 | Develop a plan of action to ensure that AISs used to manage commodities other than those covered by MMS and AMSS are supportive of the TAV operating concept. | Joint DTAV Office/ JLSC, Components | Jan 96 |
| MA05 | Design and develop enhancements to DAASC's systems for monitoring and processing asset reports, queries, and responses. | DAASC | Mar 96 |
| MA06 | Enhance retail supply systems to support TAV. | | |
| MA06.1 | Identify the required changes to retail supply management systems and determine the resources needed to accomplish those changes. | Joint DTAV Office/ Services, DLMSO | Jan 96 |
| MA06.2 | Fund the required changes to retail supply systems. | DUSD(L)/Services | Apr 96 |
| MA06.3 | Make the required changes to retail supply systems. | Services | Mar 97 |
| MA07 | Complete development of MMS. | JLSC/DLMSO | Oct 96 |
| MA08 | Implement MMS at DoD ICPs. | JLSC/Components | Oct 96 |
| MA09 | Complete development of AMSS. | JLSC/DLMSO | Jan 97 |
| MA10 | Implement AMSS at ammunition management activities. | JLSC/Services | Feb 97 |

***Note:*** MMS = Materiel Management System; AMSS = Ammunition Management Standard System; DoD = Department of Defense; ICPs = inventory control points.

**Table D-3.**
*Milestones to Achieve Visibility of Assets In-Storage or In-Process (Continued)*

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| *Milestones specific to assets in-storage* | | | |
| ST01 | Review and improve the business rules for redistributing retail assets. | DUSD(L)/Components, DLMSO | Nov 95 |
| ST02 | Develop and publish policy clarifying when IMMs should assume control of excess retail assets in place. | DUSD(L)/Components, DLMSO | Nov 95 |
| ST03 | Develop business rules governing when and how the IMMs would have access to DRMS assets. | DUSD(L)/Components, DLMSO | Nov 95 |
| *Milestones specific to assets in-maintenance* | | | |
| MT01 | Identify deficiencies and propose system and procedural changes to obtain TAV information on vendor-repaired materiel. | | |
| MT01.1 | Identify current and planned capabilities of commercial repair vendors to provide TAV. | JLSC/Components | Nov 95 |
| MT01.2 | Develop procedures and propose system changes for linking commercial repair AISs with organic depot and ICP AIS to support exchange of in-process information. | JLSC/Components, DLMSO | Mar 96 |
| MT02 | Develop capability to automatically adjust repair estimated completion dates based on variances between estimated and actual dates. | JLSC/Components | Jul 97 |
| MT03 | Develop procedures and systems for revising repair priorities and selectively rescheduling repairs of in-process assets to meet changing requirements. | JLSC/Components, DLMSO | Feb 98 |
| *Milestones specific to assets in-procurement* | | | |
| PR01 | Identify alternatives for linking procurement and ICP AISs by reviewing the linkages between logistics and procurement AISs. Design linkages to ensure that accurate due-in quantities and estimated delivery dates are available to ICP AIS. | Procurement CIM Center/JLSC, JTCC, Components, DLMSO | Nov 97 |
| PR02 | Develop and implement a procurement AIS that monitors contractor performance against contract provisions, notifies contractors of late deliveries, provides for schedule modifications, and provides to inventory managers real-time information on contractor performance. | Procurement CIM Center/JLSC, JTCC, Components, DLMSO | Nov 98 |

***Note:*** DRMS = Defense Reutilization and Marketing Service; CIM = Corporate Information Management; JTCC = Joint Transportation CIM Center.

**Table D-4.**
*Milestones to Achieve Visibility of Assets In-Transit*

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| TR01 | Develop theater systems. | | |
| TR01.1 | Develop the theater transportation system to process shipment information from port systems, track containers and pallets, read AIT, interface with GTN, and generate documentation for retrograde. | DUSD(L)/JTCC/ USTRANSCOM, Joint Staff, Services, Unified Commands, DLA | Dec 97 |
| TR01.2 | Ensure that the operational prototype of TRAC2ES, which captures worldwide patient movement requirements and selects destinations and schedules patients for evacuation, is completed on schedule. | USTRANSCOM/Services | Sep 97 |
| TR02 | Interface GTN with existing transportation systems to achieve ITV for units, cargo, personnel, and patients. | | |
| TR02.1 | GTN – TC AIMS II | USTRANSCOM/JTCC, Services | Jun 96 |
| TR02.2 | GTN – DAMMS-R | USTRANSCOM/JTCC, Services | Mar 97 |
| TR02.3 | GTN – CFM system | USTRANSCOM/JTCC, Services | Mar 97 |
| TR02.4 | GTN – STACCS | USTRANSCOM/JTCC, Services | Sep 97 |
| TR02.5 | GTN – WPS (enhancement) | USTRANSCOM/JTCC, Services | Sep 97 |
| TR02.6 | GTN – GDSS | USTRANSCOM/JTCC, Services | Jan 97 |
| TR02.7 | GTN – PRAMS | USTRANSCOM/JTCC, Services | Jan 97 |
| TR02.8 | GTN – DAAS | USTRANSCOM/JTCC, DAASC | Jan 97 |
| TR02.9 | GTN – Theater System | USTRANSCOM/JTCC, Services | Mar 98 |
| TR02.10 | GTN – CAPS II (enhancement) | USTRANSCOM/JTCC, Services | Mar 98 |
| TR02.11 | GTN – DTTS | USTRANSCOM/JTCC, Services | Jun 98 |
| TR02.12 | GTN – IC3 | USTRANSCOM/JTCC, Services | Jun 98 |

***Note:*** AIT = automatic identification technology; DLA = Defense Logistics Agency; TRAC2ES = TRANSCOM's Regulating and Command and Control Evacuation System; ITV = in-transit visibility; TC AIMS II = Transportation Coordinator's Automated Information for Movement System II; DAMMS-R = Department of the Army Movement Management System — Redesign; CFM = CONUS Freight Management; STACCS = Standard Theater Army Command and Control System; WPS = Worldwide Port System; GDSS = Global Decision Support System; PRAMS = Passenger Reservation and Manifesting System; CAPS II = Consolidated Aerial Port System II; DTTS = Defense Transportation Tracking System; IC3 = Integrated Command, Control, and Communications System.

**Table D-4.**
*Milestones to Achieve Visibility of Assets In-Transit (Continued)*

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| TR02 cont'd. | | | |
| TR02.13 | GTN (TRAC2ES module) – PRAMS | USTRANSCOM/JTCC, Services | Dec 98 |
| TR02.14 | GTN – postal system | USTRANSCOM/JTCC, USPS | Mar 99 |
| TR03 | Develop additional interfaces between transportation systems required to support the ITV operating concept. | System PMOs/JTCC, USTRANSCOM, Services | |
| TR03.1 | TC AIMS II – CFM system | | Mar 97 |
| TR03.2 | PRAMS – commercial reservation systems | | TBD |
| TR03.3 | PRAMS – Service personnel systems | | Jun 96 |
| TR03.4 | TC AIMS II – CAPS II | | Dec 96 |
| TR03.5 | TC AIMS II – WPS | | Dec 97 |
| TR03.6 | Theater transportation system — commercial foreign carriers | | Dec 98 |
| TR03.7 | WPS – theater transportation system | | Dec 98 |
| TR03.8 | CAPS II – theater transportation system | | Jun 99 |
| TR04 | Develop, or improve, source data capture programs to provide accurate and current information for ITV. | System PMOs/ USTRANSCOM, JTCC, Services, DLA, Joint Staff (J-4) | |
| TR04.1 | Implement EDI for GBLs. | | Jun 97 |
| TR04.2 | Implement EDI for ordnance data. | | Jun 97 |
| TR04.3 | Implement EDI for carrier status data. | | Dec 95 |
| TR04.4 | Implement EDI for CBLs. | | Jun 96 |
| TR04.5 | Capture non-EDI ordnance data. | | Sep 96 |
| TR04.6 | Develop SAIMD card. | | Sep 96 |
| TR04.7 | Implement EDI for vendor shipments. | | Mar 97 |
| TR04.8 | Capture enhanced MILSTAMP data. | | Jun 97 |
| TR05 | Expand DTTS to include other modes of transportation, additional sensitive commodities, and selective OCONUS shipments. | DTTS Program Office/ USTRANSCOM, JTCC, Components | Jul 97 |

***Note:*** USPS = United States Postal Service; PMOs = Program Management Offices; TBD = to be determined; EDI = electronic data interchange; GBLs = government bills of lading; CBLs = commercial bills of lading; SAIMD = standard automated input media device; MILSTAMP = Military Standard Transportation and Movement Procedures; OCONUS = outside the Continental United States.

**Table D-5.**
*Milestones to Create a JTF Logistics Management AIS*

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| TH01 | Complete the operational concept and functional requirements for JTAV. | Joint DTAV Office/ Services | Dec 95 |
| TH02 | Define JTAV's communications requirements. | DISA/Joint DTAV Office, Services | Completed |
| TH03 | Interface JTAV with selected Military Service application systems. | Joint DTAV Office/ Services | Completed |
| TH04 | Develop standard query, report, and file formats for JTAV users. | Joint DTAV Office/ Components | Completed |
| TH05 | Demonstrate rapid prototype JTAV capabilities in support of JWID. | Joint DTAV Office/ Components | Completed |
| TH06 | Develop an implementation plan for fielding JTAV capability to theater CINCs. | Joint DTAV Office/ Services | Dec 95 |
| TH07 | Transition JTAV prototype efforts to a full-scale acquisition program. | Joint DTAV Office/ Components | Oct 96 |
| TH08 | Conduct Cobra Gold demonstration. | Joint DTAV Office | May 96 |
| TH09 | Conduct integration and accreditation demonstration at JWID 96. | Joint DTAV Office/DISA | Sep 96 |

***Note:*** JTF = Joint Task Force; JTAV = Joint Total Asset Visibility; DISA = Defense Information Systems Agency; JWID = Joint Warrior Interoperability Demonstration; CINCs = Commanders-in-Chief.

**Table D-6.**
*Milestones to Implement Automated Identification Technology*

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| AT01 | Establish an Executive Agent for AIT to provide program oversight for all AIT applications in DoD, including LOGMARS and MITLA. | DUSD(L) | Completed |
| AT02 | Establish a program for acquiring AIT and supporting hardware that are capable of directly accessing logistics AISs. | AIT Executive Agent/Components | Jan 96 |
| AT03 | Prepare a plan for expanding existing AIT capabilities and implementing an infrastructure to support the proposed AIT operating concept. | Joint DTAV Office/AIT Executive Agent, JTCC, Components | Jan 96 |
| AT04 | Develop and implement standard data elements, documents, label formats, and procedures in all logistics processes. | AIT Executive Agent/ Components, JTCC, DLMSO | Mar 96 |
| AT05 | Develop and implement common protocols for linking AIT devices to logistics AISs and for linking AISs. | AIT Executive Agent/ DLMSO, JTCC | Jun 96 |
| AT06 | Develop procedures for expanding use of AIT to all GSA and vendor shipments. | Joint TAV Office/AIT Executive Agent | Dec 96 |
| AT07 | Integrate AIT capability into migratory logistics systems and standard logistics AISs. | AIT Executive Agent/ JLSC, JTCC, DDSC, Components | Jan 97 |
| AT08 | Modify acquisition contracts to require the generation and attachment of AIT to all assets being acquired. | DUSD(L)/Director, Defense Procurement, Components | Jun 97 |
| AT09 | Identify and resolve barriers to using RF tags and frequencies in overseas areas. | DUSD(L)/AIT Executive Agent, Joint DTAV Office, Components | Jun 97 |

***Note:*** LOGMARS = Logistical Applications of Automated Marking and Reading Symbols; MITLA = Microcircuit Technology in Logistics Applications; GSA = General Services Administration; DDSC = Defense Distribution Systems Center; RF = radio frequency.

**Table D-7.**
*Milestones Required for TAV Prototypes and Demonstrations*

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| PD01 | Demonstrate the integration of ammunition, personnel, and medical information for theater CINCs and JTF commanders. | Joint DTAV Office/ JCS, Components | May 96 |
| PD02 | Demonstrate the integration of supply and transportation information for the theater CINCs and JTF commanders. | Joint DTAV Office/ JCS, Components | Completed |
| PD03 | Expand the lateral redistribution program to include reparable assets. | Joint DTAV Office/ Components | Jun 96 |
| PD04 | Expand DTTS to include all movements of arms and ammunition. | Joint DTAV Office/ DTTS Program Office, USTRANSCOM, JTCC | |
| PD04.1 | Explore use of commercial railroad TRAIN II system for tracking and integrate into DTTS. | Joint DTAV Office/ DTTS Program Office, USTRANSCOM, JTCC | Completed |
| PD04.2 | Develop a plan of action to expand DTTS to rail. | Joint DTAV Office/ DTTS Program Office, USTRANSCOM, JTCC | Completed |
| PD04.3 | Interface DTTS with JTAV. | Joint DTAV Office/ DTTS Program Office, USTRANSCOM, JTCC | Sep 96 |
| PD04.4 | Explore feasibility of using AIT to enhance security of ammunition in port operations. | Joint DTAV Office/ DTTS Program Office, USTRANSCOM, JTCC | Mar 96 |
| PD04.5 | Determine the requirements for AIT to enhance in-transit visibility and OCONUS operations. | Joint DTAV Office/ DTTS Program Office, USTRANSCOM, JTCC | Dec 95 |
| PD04.6 | Integrate JLSC's AMSS development efforts with DTTS expansion. | Joint TAV Office/ DTTS Program Office, JLSC, JTCC, USTRANSCOM | Sep 96 |

***Note:*** JCS = Joint Chiefs of Staff; TRAIN II = TeleRail Automated Information Network II.

**Table D-8.**
*Milestones Critical to Multiple Functional Areas*

| No. | Action | Lead/support | Target date |
|---|---|---|---|
| CM01 | Ensure that DISN has adequate capacity to support TAV. | Joint DTAV Office and DISA | Dec 95 |
| CM02 | Develop and implement the capability to document and capture data on shipment consolidations. | DLMSO/Components, USTRANSCOM, DAASC | Dec 95 |
| CM03 | Complete design and testing of government-developed translator to accommodate capabilities of the DLMS Version 2.0. | DAASC | Mar 96 |
| CM04 | Mandate demand reporting by retail supply activities to IMMs when requisitions are filled without passing through an IMM. | DUSD(L)/Components, JLSC | Mar 96 |
| CM05 | Incorporate all retail-level demand reporting into IMM processes. | JLSC/Components | Jun 96 |
| CM06 | Mandate that all DoD commercial carriers and contractors be EDI-capable. | DUSD(L)/Joint DTAV Office, DLMSO, Components | Sep 97 |
| CM07 | Incorporate an EDI capability into DoD systems. | DUSD(L)/Joint DTAV Office, Components | TBD |
| CM08 | Resolve security and access issues between TAV data repositories. | Joint DTAV Office/JLSC, Components | TBD |

***Note:*** DDN = Defense Data Network; DLMS = Defense Logistics Management System.

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The Deputy Under Secretary of Defense (Logistics) established the Total Asset Visibility (TAV) Joint Task Force to develop a clear, comprehensive plan for implementing an integrated TAV capability throughout the Department of Defense (DoD). This document represents that plan. TAV is the capability to provide users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, and supplies.

This plan identifies the TAV requirements of both operational and logistics managers. It addresses TAV requirements in the four areas of requisition tracking, visibility of assets in-storage or in-process, visibility of assets in-transit, and logistics management within a theater of operations. It delineates a TAV baseline consisting of the three national-level systems — Logistics Information Processing System, an Inventory Control Point Automated Information System, and the Global Transportation Network — that, in turn, support the Joint Theater Logistics Management System.

This document presents a strategy for implementing TAV throughout DoD with specific actions, lead agencies, and dates. It refines earlier TAV planning efforts that resulted in the *DoD Total Asset Visibility Plan*, published in April 1992, and represents the collaborative efforts of DoD Components to improve Defense TAV capability.

**14. SUBJECT TERMS**

Total asset visibility; TAV; JTAV; automatic identification technology; AIT; Defense Automatic Addressing System; DAAS; Global Transportation Network; GTN; in-transit visibility; ITV; inventory control point; ICP; logistics; Logistics Information Processing System; LIPS; Materiel Management System; MMS; supply; tracking; transportation

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